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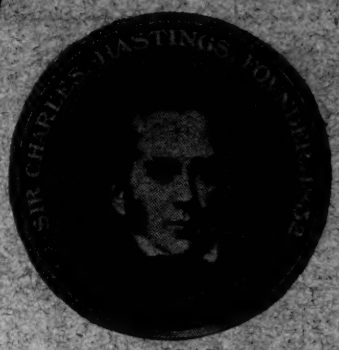

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VII.—THE MECHANICAL TREATMENT OF FRACTURES UNDER WAR CONDITIONS.

BY

LIEUTENANT-COLONEL ROBERT JONES, CH.M.,
F.R.C.S.I. (HON.),
INSPECTOR OF MILITARY ORTHOPAEDICS, ARMY MEDICAL SERVICE.

THE methods employed must be both efficient and simple; they must allow easy and painless access to the wound, and ensure immobilization of the limb during transport. The following notes are a contribution towards the attainment of these needs, but it must be understood that modifications of them may be rendered necessary by the severity of the wounds, or by the necessity of providing for the transport of the patient, should early evacuation be necessary

Plaster-of-Paris, so often used in the treatment of simple fractures, becomes a filthy method where suppuration has occurred. Despite every precaution for the exposure of the wound the plaster mops up discharges, and becomes horribly offensive,

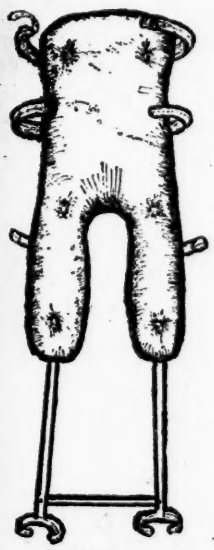

FIG. 1.—Thomas's double frame.

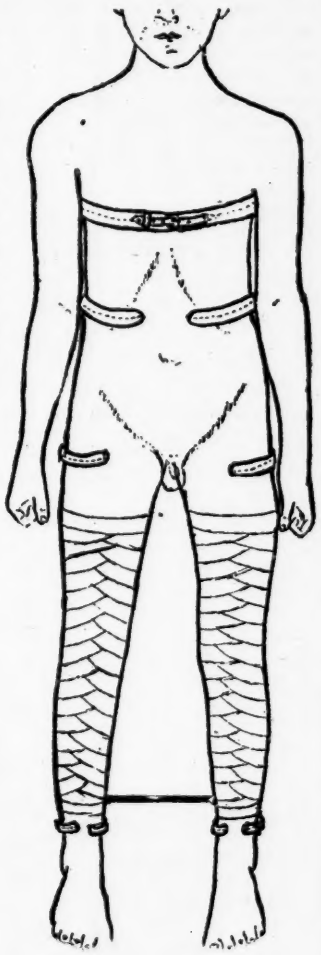

FIG. 2.—Thomas's double frame applied.

adding to the infection of the wound. I would urge my young colleagues at the front to discard it altogether.

FRACTURES THROUGH THE LOWER SPINE AND PELVIS.

Fractures through the lower spine and pelvis are, in my opinion, best treated on the double Thomas frame. (Figs. 1, 2, 3.) All that is needed is to place the patient on the frame, bandage the limbs, and press the body and leg wings into position to prevent side movement. If there is any wound on the posterior surface that requires dressing the pad can be shaped accordingly to allow of access.

Thomas's Double Frame.

Measurements Required: Nipple to external malleolus.
Splint Measurement: 4 in. less than above measurement.

Application.—Place the patient on the splint with the buttocks on either side of the horseshoe-shaped gap in the back pad, which has been left for nursing purposes. The wings of the splint should then be moulded round the patient's chest and ribs, care being taken to turn them up acutely enough from the back pad to prevent side movements of the body. A 5 in. thick pad is placed under each knee to prevent genu recurvatum, and the ankle grips, which reach just above the malleoli, must be well padded. The knees are now bandaged firmly to the splint, and

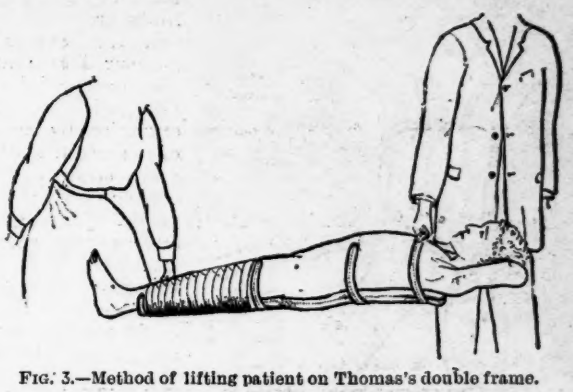

FIG. 3.—Method of lifting patient on Thomas's double frame.

constant pressure of bedclothes on the feet avoided during treatment.

Double Frame too Short.—Place the patient as high up on the splint as the lesion will allow. Posterior knee splints firmly bandaged to the knees will be found to supply the deficiency at the foot of the splint quite well.

Double Frame too Long.—Place the patient on the splint with chest band at the nipple line as usual. Readjust the back pad sufficiently high up the splint to allow for nursing purposes. The pads under the knees will require to be larger, and the heels must be protected with rectangular foot splints or plaster-of-Paris, as they will be lying on the leg bars of the splint—otherwise, proceed as usual.

Hints for Nursing a Patient on Double Frame.

The patient should never be turned for nursing purposes, or the spine and limbs will sag laterally. Place a block underneath the bar between the ankles to avoid pressure on the heels, increasing the height of the block when necessary to insert a flat bed-pan beneath the splint. In this raised position all necessary washing of the buttocks can be done. The patient is never taken from the splint, nor are the bandages removed for any purpose, but only the exposed skin washed. The feet should be supported at right angles, and protected from the weight of the bedclothes.

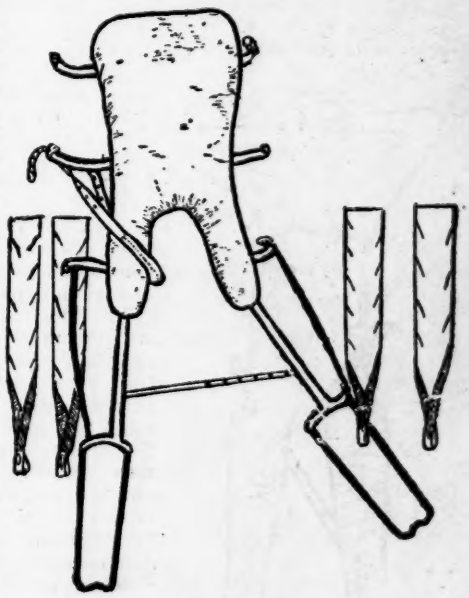

FIG. 4.—Left abduction frame.

FRACTURES OF THE LOWER LIMB.

HIP AND UPPER THIGH.

Fractures through the hip joint and those just below the trochanter are best treated by a modification of the Thomas splint, which I have described as an "abduction frame" (Fig. 4). It is a splint upon which the patient lies and can be carried (Figs. 5 and 3), extension is easily applied, maintained, and need not be relaxed for any purpose. The patient is placed upon this splint, and any

displacement should be overcome by immediate extension in the abducted plane. The limb should be rotated inwards slightly until the foot is at right angles to the table and be fixed in this position on the frame. It will be seen by the illustration that both limbs are controlled and that extension is secured by strapping on the injured limb with counter extension by means of a smooth leather groin strap on the opposite side of the pelvis. This groin strap should not be slackened by the nurse under any pretext, but in order to avoid pressure sores she should be instructed to alter the area of skin subjected to it over the adductor muscles by moving it to and fro. This method of "fixed extension" in abduction secures the lower limb in relation to the pelvis in a manner which can never be satisfactorily achieved by weight and pulley, where reliance is placed on the weight of the body for counter extension. It is by reflex nervous impulses, induced by changes of tension in the muscle, that muscular spasm is produced. A patient lying in bed with a fractured femur—high up or lower in the shaft—cannot avoid constantly changing the state of tension of the muscles of his thigh if a weight and pulley are attached to his limb. The counterpoise is the weight of his body. Every time he tries to shift the position of his shoulders by digging his elbows into the bed he alters the tension of his muscles, calling forth a reflex spasm. When he falls asleep and his muscles relax; when he moves in his sleep; when he is lifted upon a bedpan or moved slightly by the nurses to have his bed put straight, there is apt to recur this reflex contraction due to sudden change in tension.

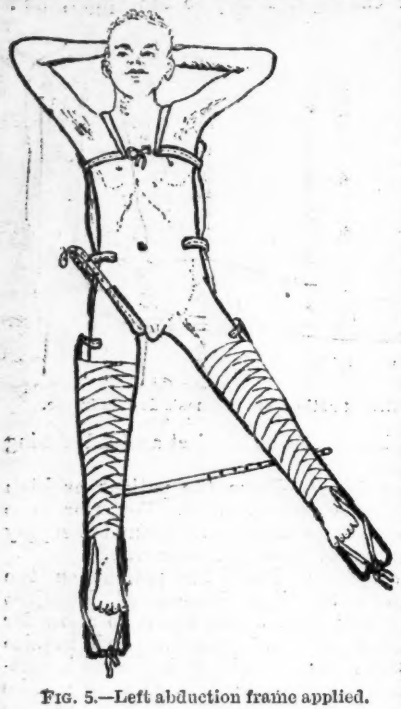

FIG. 5.—Left abduction frame applied.

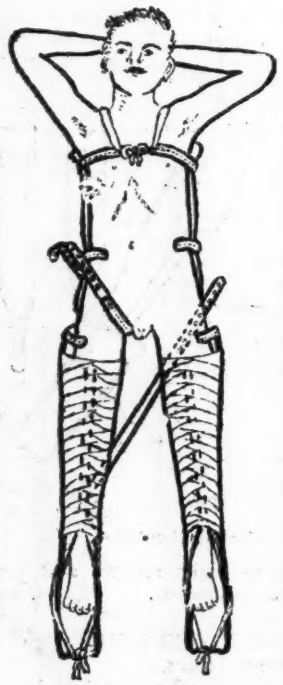

FIG. 6.—Left abduction frame, limbs parallel for transport.

The long Liston splint, which is much in use, is quite unsuitable for fractures of the upper thigh. It does not permit abduction, but maintains the limb in line with the trunk—a position which must result in angular union, and in a sagging which proves one of the very common and troublesome deformities. Furthermore, as the splint extends to the axilla, any movement of the trunk involves movement of the limb, and attention to the secretion disturbs the fracture. Both the Liston and the ordinary weight and pulley are ill suited for any form of fracture with suppuration, where good alignment, comfort and ease of transport are desired. One of the objections to the old abduction frame was the difficulty of transport. The abducted limb proved difficult both on the boat and in the train. To obviate this, the splint is now made so that the patient may be put up for transport with both limbs parallel. As soon as the patient arrives at hospital the limb is abducted without disturbing him in any other way (Fig. 6).

The patient who lies on an "abduction frame" can be lifted and moved without pain, without disturbing the fracture or relaxing the extension, and the dressing can be changed without interfering with the mechanism of fixation. If the wound is through the buttock and the discharge takes place there, the splint can be modified as shown in the illustration (Fig. 7). The abduction frame can be applied in a few minutes.

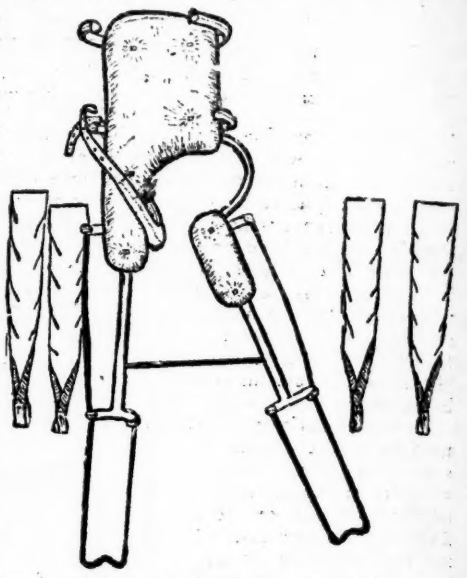

FIG. 7.—Modified abduction frame for pelvic wound; only to be used while wound discharges.

Abduction Frame.

Measurements Required: Nipple to external malleolus.
Splint Measurement: From chest band to ankle grip, 4 in. short of above measurement.

Application.—A strip of adhesive plaster, to which a strong loop has been sewn at one end, is applied to each side of each leg. The adhesive plasters should reach from as near the lesion as possible to the malleoli—the loops lying at each side of the heel. Bandage these on firmly. The patient now lies on the splint (see "Double frame"), but before bandaging down the knees lay the body of the groin strap along the gluteal fold of the sound limb, securing it by means of its perforated ends to the pegs on the splint wing. Next apply the traction required to the injured limb, maintaining it by tying the external loops to the end of the splint by means of bandage which has previously been passed through the loops. The groin strap remains stationary. Further traction of the limb is obtained by means of

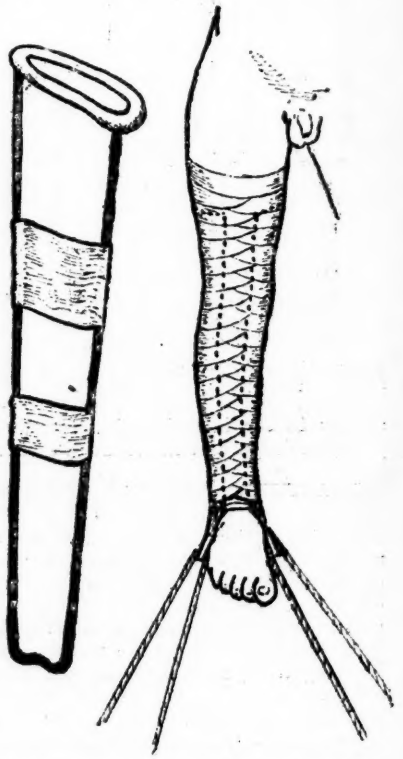

FIG. 8.—Strapping extensions applied to leg. Suspension slings to splint to support limb.

this extension. The sound limb should have very slight traction applied to avoid pelvic tilting.

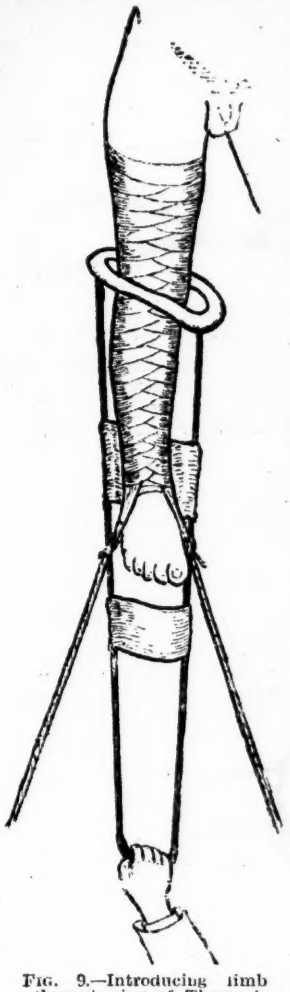

FIG. 9.—Introducing limb through ring of Thomas's knee splint.

If Abduction Frame too Short.—Place patient on abduction frame allowing only about 6 in. of space between the heels and the extension loops of the splint. Move the back pad higher up the splint fitting the gap between the patient's buttocks for nursing purposes. Having fitted the groin strap to the patient's gluteal fold, tie the perforated ends over the chest band of the splint at the axilla and proceed as usual.

If Abduction Frame too Long.—Place patient on abduction frame, fixing the groin strap in the usual manner. If the chest band will not mould down sufficiently to lie comfortably in each axilla, it may be turned back flat with the bed and ignored. Heels that do not reach beyond the leg piece of the splint must be protected from pressure with a rectangular foot splint or plaster-of-Paris, and proportionately thicker pads placed under the knees (see "Double frames").

Nursing Hints for Patient on Abduction Frame.

The patient should never be turned for nursing purposes, or the spine and limbs will sag laterally. Place a block underneath the bar [illegible] the ankles to avoid pressure to heels, increasing the [illegible] block when necessary to insert a flat bedpan beneath the splint. Also in this raised position all necessary washing of the buttocks can be done. The patient is never taken from the splint nor are the bandages removed for this purpose, but only the exposed skin washed. The feet should be supported at right angles, and protected from the weight of the bedclothes. Remove the groin strap for five minutes four-hourly during the first twenty-four hours; twice daily is usually sufficient afterwards. Rub area with spirit and powder during these intervals, replacing strap in same hole as before, but as much as possible over a different adductor skin surface.

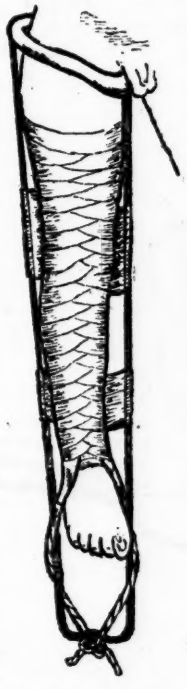

FIG. 10.—Knee splint in position, traction applied.

UPPER MIDDLE AND LOWER THIGH.

For all other fractures of the thigh the Thomas knee splint is incomparably the simplest and best (Fig. 8). I have often fixed a fractured thigh in this splint and sent the patient home in a cab. By reason of its construction, it automatically secures a correct alignment, as any surgeon with a mechanical mind can see if he examines the illustration. I am in the habit of using this splint for the treatment of all fractures of the middle and lower third of the thigh, fractures through the knee-joint, and fractures through the upper and upper middle portion of the leg.

The application of the Thomas bed splint is quite easy. Strapping of adhesive plaster is applied in the usual way to the sides of the limb. At the lower end of the extension strapping there is a loop of webbing to which is attached a length of strong bandage (Fig. 8). The ring of the splint is passed over the foot (Fig. 9) and up to the groin till it is firmly against the tuber ischii. The extensions are then pulled tight, the ends turned round each side bar (Fig. 10) and tied together over the bottom end of the splint, which should project 6 or 8 in. beyond the foot. Care must be taken to avoid internal or external rotation of the limb, the foot being kept at right angles. Local splints can then be employed, and are made of block tin or sheet iron. They can be moulded by the hand to fit the limb, and yet, being gutter-shaped, they are rigid longitudinally (Fig. 11). They can be disinfected by fire or water. A couple of transverse bandage slings suspend the limb from the side bars of the knee splint. A straight splint is placed behind the suspensory bandages of the thigh and knee. On the front of the thigh another sheet iron splint is applied, and the femur is thus kept rigid. The alignment from the hip-joint to the ankle is perfect, being dependent on a straight pull (Fig. 12).

FIG. 11.—Sheet iron splints moulded by hand for various uses.

One may prefer to use a screw extension instead of bandage in some cases, when there is difficulty in maintaining the full length of the limb (Fig. 13). This splint allows the patient to raise his shoulders, or even sit in bed. His other leg can be moved freely without altering the tension on his thigh muscles, and there is no reflex spasm. Even if the muscles try to contract they cannot, for the ring of the splint is firm against the tuber ischii. The muscles therefore do not remain on the alert but become quiescent, and starting pains do not occur. Such is the difference between "fixed" and "intermittent" extension.

FIG. 12.—Thomas's bed knee splint with local splints applied.

In using this splint a little attention is necessary to prevent soreness of the perineum. The ring of the splint, being covered with smooth basil leather, can easily be kept clean, so can the skin. The dressings can be applied without in any way interfering with the action of the splint. When the fracture has occurred through the knee or upper tibia the splint is applied in the same way.

[illegible] often been a matter of astonishment to

FIG. 13.—Screw extension which may be used with Thomas's knee splints or abduction frames.

me that so simple and effective a splint has not been universally employed. It can be applied in a few minutes, usually without an anaesthetic, and one is always sure of good length and good alignment. The fractured limb can be moved in any direction without giving pain, so that transport is easy and safe. I have never yet had to plate or wire a femur in a recent case, and this I ascribe to using the Thomas splint.

FIG. 14.—Skeleton splint for injuries near the ankle-joint.

Thomas Bed Knee Splint.

Measurements Required: Horizontal circumference of thigh at groin, length of leg from fork to base of heel.

Splint Measurement: Add 1½ in. to circumference measurement to allow for obliquity of ring. Add 6 in. to 8 in. to length of leg measurement to allow for extension pull.

Application.—Apply a strip of adhesive plaster, to which a loop has been sewn at one end, to each side of the leg with the loop lying at the heel. These should be firmly bandaged on and reach from the heel to as near the lesion as possible. Slide the ring of the splint over the foot and up the leg, pushing the ring well into the groin and applying the necessary counter-extension on the limb. This counter-extension is maintained by tying the extension loops to the end of the splint by means of bandage which has been previously passed through the loops.

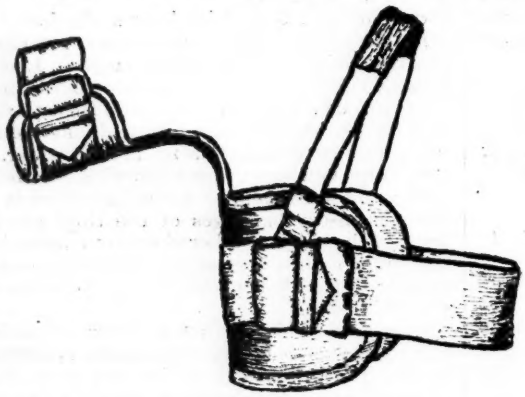

FIG. 16.—Splint to keep the arm abducted slightly forward, and slightly rotated inwards.

A posterior knee splint, short enough to just avoid the gluteal fold at the upper end and the heel at the lower end, is then slung between the side bars of the bed splint to support the limb. Local splints can be applied if required, and the whole bandaged compactly together. Sling or support the foot of the splint to prevent pressure of the heel on the bed.

If the Splint is too Large in the Ring.—Fix a sufficiently large soft pad in the ring at its junction with the outer bar to prevent the inner portion of the ring slipping from the groin across the perineum.

If the Splint is too Small in the Ring.—Saw through the ring just in front of its junction with the outer bar; open as necessary.

Nursing Hints for Patient with Thomas Bed Knee Splint.

This is usually applied when extension of the limb is required; therefore pressure over the ischium may be great, but this can be relieved by raising, lowering, or abducting the limb from time to time. The skin surface lying under the ring should frequently be changed and kept dry and well powdered. The foot end of the splint must be either slung or supported to prevent pressure under the heel, and if the foot has been left free it should be supported at right angles by a pillow or otherwise.

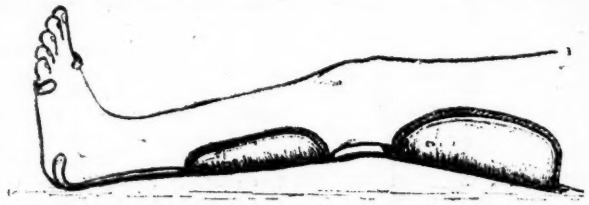

FIG. 15.—Skeleton splint applied.

LEG.

Fractures of the lower portion of the tibia or fibula, and fractures through the ankle-joint, I treat in a skeleton splint, such as I have illustrated (Fig. 14). It allows of easy access to the wound, and can without difficulty be modified to suit a special case. Fortunately, in gunshot wounds, the spiral fracture is rare, and, generally speaking, one bone remains unbroken. The treatment, therefore, of fractures of the leg does not present so much difficulty as that of the thigh. For transport, however, and for general comfort, the splint should immobilize the knee (Fig. 15).

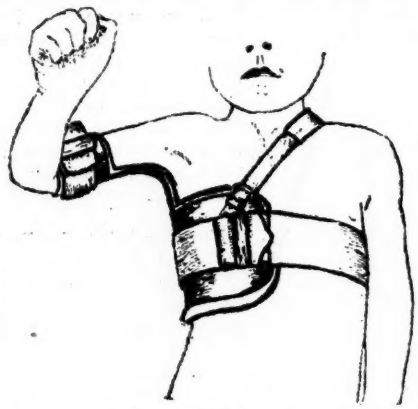

FIG. 17.—Splint applied to keep the arm abducted slightly forward, and slightly rotated inwards.

A Skeleton or a Rectangular Foot Splint.

Measurements Required for Skeleton Splint: Tread of great toe to heel.

Measurements Required for Rectangular Foot Splint: Tip of great toe to heel.

Splint Measurements: The same, but any adult size is easily adapted.

These splints are usually applied to feet which are, or are required to be, held at right angles. When this is not the case, it is advisable to alter the splint's angle, or a pressure sore may result to the heel which is not lying in its appointed place.

Rectangular Foot Splint too Large.—Of no consequence unless marked, when a pad will be required above insertion of the tendo Achillis to prevent pressure on the heel; and a *skeleton splint*

FIG. 18.—Splint immobilizing the elbow-joint but allowing access to it.

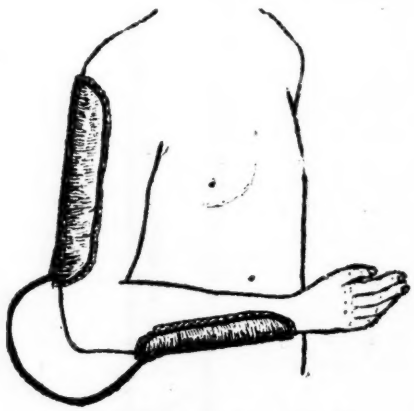

FIG. 19.—Elbow splint applied.

will require a local splint or its substitute to the sole of the foot.

FIG. 20.—Thomas's knee splint, modified, used to maintain extension of the humerus in the abducted position.

Skeleton Splint too Short.—The foot-piece of the splint can be lengthened by a local flat splint or its substitute.

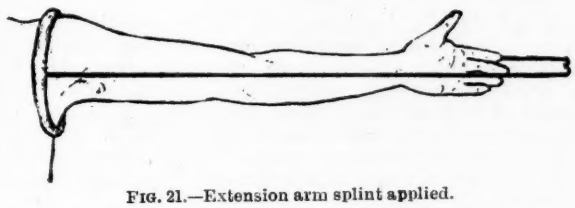

FIG. 21.—Extension arm splint applied.

Nursing Hints for Patient with Skeleton Foot Splint.

This splint should be supported on a graduated pillow which is thicker under the knee.

FRACTURES OF THE UPPER LIMB.

ARM.

Fractures through the shoulder-joint and through the surgical neck of the humerus require no splints. The elbow should be slung at right angles, and fixed by a broad bandage to the side. The dressings would probably replace the usual pad in the axilla, which should never be bulky. Shoulder shields are unnecessary and cumbrous. The patient, where practicable, should be treated in the upright position, and should have his head and shoulders well propped at night.

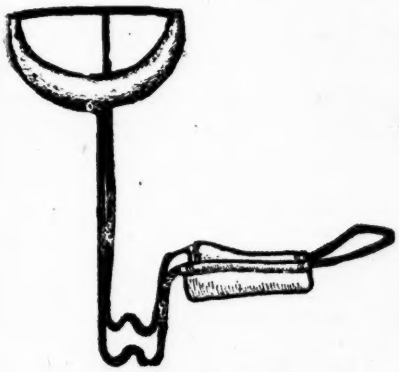

FIG. 22.—Modified Thomas's humerus extension splint.

FIG. 23.—Modified Thomas's humerus extension splint applied.

Where ankylosis is to be expected after a bad smash and suppuration of the shoulder, and opportunity is afforded for continuous treatment, the arm should be kept abducted slightly forward, and slightly rotated inwards (Figs. 16 and 17). This assures a much extended range of movement at a more useful radius, such range of movement being brought about by the action of the scapula. This position need not be adopted if the patient has to be transported, as it can be established after the arrival home. Fractures through the elbow or immediately above the condyles are best treated without splints. If possible, the arm should be kept flexed well above a right angle. Suppurating cases in the adult will not admit of the very acute flexion which we insist upon in the case of children. If, for a rare reason, a splint has to be applied, the internal wooden angular splint must be avoided, because it is always clumsy and often causes deformity, and a splint as illustrated used (Figs. 18 and 19).

FIG. 24.—Hyperextension hand splint.

Fractures of the middle and lower middle portions of the shaft of the humerus, where dressings have to be frequently changed, require very gentle handling, and I illustrate two splints which may be found very useful. One is a modified Thomas knee splint used to maintain extension in the abducted position, the patient being recumbent (Figs. 20 and 21). The other is a modified Thomas humerus extension splint (Figs. 22 and 23), to be used when the patient can walk about or sit up in bed. Either splint permits of easy dressing, and maintains adequate fixation. As so much destruction of bone may be produced by modern shrapnel, and even by rifle bullet, great care must be taken to prevent over-extension, otherwise non-union will ensue.

FIG. 25.—Hyperextension hand splint applied.

FOREARM.

The chief disability to be feared in fractures of the shafts of the bones of the forearm is inability to supinate the forearm completely. The trouble usually arises where both bones are broken, but it may occur where the radius alone is involved. We must remember that the whole length of the posterior border of the ulna is subcutaneous and is practically straight. On this straight ulna the curved radius rotates like the handle of a bucket. We must therefore attend to two points. First, we must keep the ulna straight; second, we must not interfere with the natural curve of the radius. That is to say, there must be no lateral pressure of bandage or splint on the middle of the shaft of the radius. In dealing, therefore, with these fractures, whether one or both bones be broken, the position of supination should invariably be maintained. This is even more important in septic compound fractures than where no complication exists. Neglect of this important point will often result in a locking of the bones in pronation. We must remember that in nearly all neglected fractures of the forearm, supination and not pronation is defective, the arm being usually fixed in the pronated position.

FIG. 26.—Skeleton hyperextension hand splint.

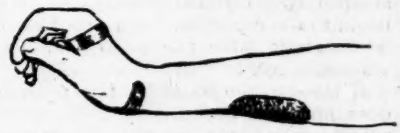

FIG. 27.—Skeleton hyperextension hand splint applied.

FIG. 28.—Skeleton hyperextension hand splint applied.

WRIST AND HAND.

Gunshot wounds through the wrist are very common, and far too many have been treated with the hand in line with the forearm—that is, midway between palmar and dorsiflexion. This is fatal to good function. All injuries of the wrist-joint should be treated in the dorsiflexed position, as shown in the illustration,

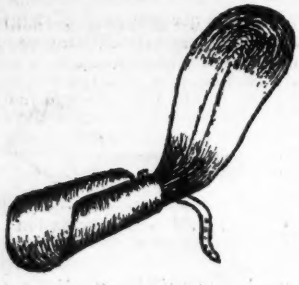

FIG. 29.—Long hand splint.

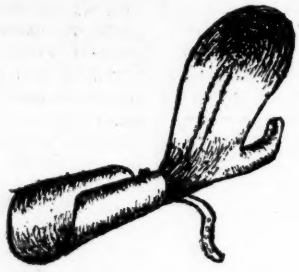

FIG. 30.—Long hand splint, with thumb-piece.

FIG. 31.—Long hand splint applied.

in order that the fingers may maintain their grasping power (Figs. 24, 25, 26, 27, and 28). Fractures of the hand may be immobilized as shown (Figs. 29, 30, and 31).

Care must be taken to fit the wrist flexion accurately to the splint flexion, thus avoiding any possible strain of the carpal joints.

RETENTION OF LOOSE PIECES OF BONE.

I do not intend to deal with the surgical considerations involved in the treatment of the suppurating wound. Many distinguished surgeons are devoting themselves to this problem. It may be well, however, to offer a word of warning against the destruction of loose pieces of bone removed from the wound. If quite loose they can be taken out, cleaned, and replaced. Suppurative compound fractures unite well if time be given them; a common source of failure is due to the removal of bone.

THE USE OF CRUTCHES TO PREVENT PRIMARY CONTRACTION.

BY DR. HAGENTORN,
PETROGRAD.

CRUTCHES are commonly used by patients after the loss of one of the lower limbs or after injury before complete recovery. The latter, using them in the same way as the former, lift the injured limb when walking; we frequently see them walking with the knee lifted and bent, or the thigh hanging straight with a bent knee, according to the position of the wound, as in cases of wounds of the soft parts of the thigh, etc.

This method of holding the leg in walking, if it is continued over ten to twelve days, makes a bent knee and extended ankle-joint immobile. The contraction thus caused by injuries of the lower limb is merely reflex; this reflex primary contraction is easily cured; the secondary cicatricial contraction may get worse with time—for instance, after loss of muscular substance. To prevent pain from the injury of the muscle, the ends of it are approximated and fixed by the other flexors. The patients acquire this crooked position of the limb before they begin to use crutches, from the first day after the injury. A fortnight later the knee can scarcely be extended without force.

If the surgeon waits for the healing of the wound, and does not take precautions to prevent the contraction by splinting, and lets the patient walk with crutches with a lifted leg, shortening of the ligaments of the joints follows the muscular contraction; extension apparatus is required, and time is lost before the harm can be undone.

This can be prevented if crutches be used as follows: It is not enough to give crutches to a patient; the surgeon must teach him how to use them. The presence of the surgeon is necessary to give the patient assurance that he is going the right way without the least danger to his injured limb. His presence is desirable at the first trial to watch the patient. After lying in bed for several days the patient may feel giddy in the upright position, and may fall. Not many patients can walk at once with crutches as if they had never walked without them. Many require teaching.

Give the patient his crutches in the way in which they have to be used. Put the ends of them at a near and equal distance in front and aside of him, and let him take two steps, putting the wounded leg with the sole, as far as he can, flat on the floor, like the healthy one; then put both crutches at a rather greater distance in front of him, and so on. Care should be taken to let the patient put his feet symmetrically, not putting the bad one in abduction as he is inclined to do, nor the toes of the bad one pointing inward. In the absence of the surgeon the nurse must see that the patient learns his lesson thoroughly.

A light lateral splint, applied during the first days, can be removed, and the patient will not feel inclined to bend the knee, nor to keep the ankle-joint in an equinus position.

There is no need to wait for the use of crutches till the wound has entirely healed or the suppuration has ceased. There is no danger whatever in using the lower limb for walking as soon as the wound is granulating. The crutches must not be merely a support of the weight of the body, as in cases of amputation; they ought also to be a means of helping the physiological graduated use of muscles and bones.

To decide the time for using both crutches, or only one, or a stick, there is a simple method. Reach both hands to the patient instead of crutches, and let him take a few steps. If the pressure on both your hands is rather heavy, he must continue to walk with both crutches; if your hand feels the pressure of the hand on the bad side, he can walk with one crutch; if the pressure be slight on both your hands, he can walk with a stick.

Another important point for the same purpose is the length of time that the patient takes over touching the floor in making a step with the injured limb. If the time be very short he must use crutches. The more the difference of time between the steps of the two lower limbs diminishes the sooner he will be able to use a stick.

The length of crutches must exceed by 1½ to 2 inches the vertical line from the armpit to the ground.

Patients brought into hospital ten or more days after injury are many of them unable to straighten the leg at the knee-joint. Judicious forcible straightening, with fixation by means of a plaster-of-Paris bandage, with graduated movements and use of crutches, will remove the deformity. I have never had, either in civil or in war practice, to resort to physio-therapeutic measures to restore a recent contraction, if taken in time.

These remarks chiefly refer to cases of wounds of the soft parts of the leg; but the crutch *clientèle* is much wider than that. I will give the approximate times at which to begin the use of crutches in different cases of injuries of the lower limb. Allowance must be made for individuality.

1. Small wounds of the soft parts of the leg, scarcely discharging; light splint: Crutches on fifth to seventh day after injury.

2. Larger and more actively discharging wounds, with splint: Crutches on tenth to fourteenth day from commencement of granulating.

3. Wounds of the knee or ankle joint, penetrating the joint; splinted with a suitable plaster-of-Paris bandage; opening into joint closed: Crutches two to three weeks after the injury. If the joint has not been opened and the cartilages are uninjured, crutches on the fifth to seventh day after injury.

4. Special care must be taken over the use of crutches in cases of suspected or existing lesions of blood vessels.

5. Compound fractures of tibia or fibula or both: at the

time of diminished discharge, before consolidation of fracture. Crutches on the fifth to fifteenth day, with suitable plaster-of-Paris bandage.

6. Compound fractures of the thigh: According to the degree of bone-splitting and of suppuration, crutches on the third to seventh week, with plaster-of-Paris.

7. Wounds of the foot, even of the sole, do not contraindicate the use of crutches during the period of granulation.

The early use of the physiological functions of muscles and bones after injuries and gunshot wounds reduces to a considerable extent the number of patients requiring physio-therapeutic after-treatment.

PSEUDOTUBERCULOMA SILICOTICUM.

BY

C. R. NITCH, F.R.C.S.,

ASSISTANT SURGEON, ST. THOMAS'S HOSPITAL.

THE following case is an example of a rare lesion resulting from the traumatic insertion of silica into the lip:

A man, aged 39, seen by me on May 18th, 1916, gave the following history:

In 1905 he fell off his bicycle when riding along a dusty country road, cutting his nose and the mucous membrane on the buccal aspect of his lower lip. He thought that in all probability some road grit was ground into the wound, for he distinctly remembers spitting out blood and sand after he picked himself up. He used a mouth wash, and healing took place in about fourteen days. The resulting scar was somewhat thickened, but underwent no further change until five months ago, when a swelling began to form in its centre. Four months later the submental glands became enlarged and tender. The glandular enlargement, combined with the deformity of the lip produced by the increasing size of the tumour, led the patient to consult his doctor, who brought him to see me.

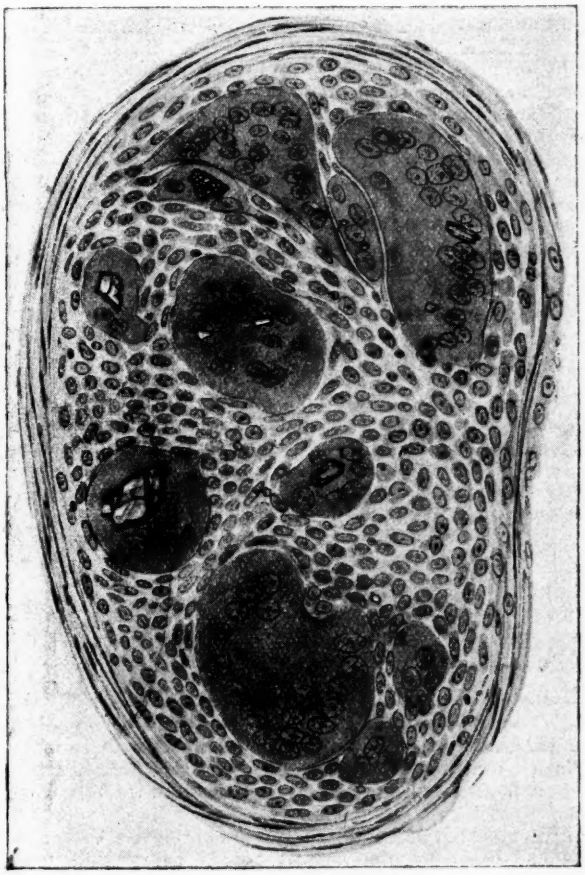

FIG. 1.—A group of multinucleated giant cells distributed in a circumscribed aggregate of proliferated connective tissue cells, the whole being surrounded with a narrow zone of fibrous tissue, as in a miliary tubercle. The whole of the new formation was constructed after a similar manner. Many of the giant cells enclose particles of silica. 2/3 in. objective.

He was a tall, well-built man, with a somewhat prominent lower lip. He stated that he had always been perfectly healthy and that there was no history of phthisis or specific disease. Von Pirquet's cutaneous reaction was negative. On the inner side of the lower lip, slightly to the left of the mid-line and just above the frenum, there was a hard rounded tumour, a little larger than a shilling (about 2.3 cm.) in circumference and about 1 cm. in thickness. The mucous membrane was firmly adherent to the whole of its buccal surface, and it appeared to be invading the muscles of the lip. The skin was freely movable over the tumour. The submental glands were slightly enlarged and tender, but freely movable. The scar in the nose was small, soft, and hardly visible. Palpation of the tumour through the skin conveyed an impression similar to that given by a preputial chancre. A provisional diagnosis of an endothelioma or of a fibroma surrounding a foreign body was made.

On May 20th the tumour, together with the mucous membrane covering it and a quarter of an inch of the surrounding tissues, was excised from the buccal aspect of the lip, and the submental glands were removed. Healing was uneventful, and up to the present date there has been no sign of recurrence.

Pathological Report.

The tumour was tough and somewhat granular on section. It was sent to Professor S. G. Shattock for examination, and I have to thank him for the diagnosis of a very unusual condition, the nature of which is indicated by the name which he has given it.

Microscopic examination showed that the lesion consisted of a congeries or a mosaic of giant-celled systems and huge giant cells, hardly to be distinguished from those of tuberculosis, although no caseation was present. No tubercle bacilli or other bacteria were discoverable in the lesion in microscopic sections.

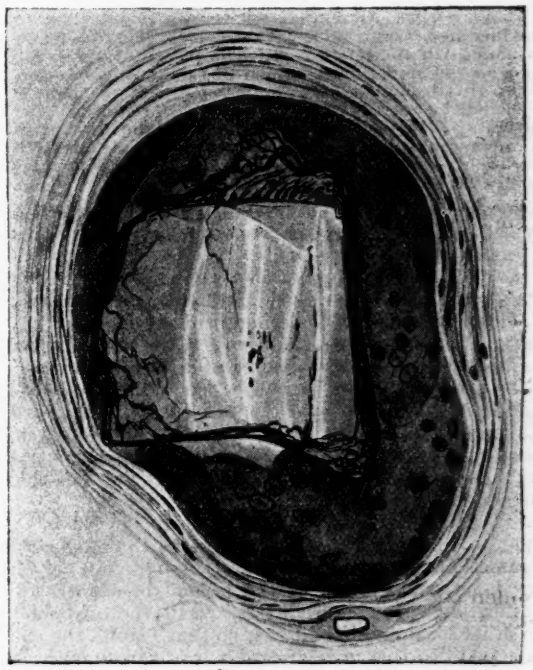

FIG. 2.—Giant cells with an included particle of silica. 1/6 in. objective.

In practically all the giant cells, however, and elsewhere, there were particles of silica, which stood brilliantly out when the sections were polarized. That the material consisted chemically of silica was proved by its insolubility in boiling nitric acid. The figures appended will, perhaps, convey at a glance the details of the structure of this singular formation.

WHEN the *Letimbro* was torpedoed Major Giulio Fantoli, of the Medical Service of the Italian army, who was on board, got away in one of the boats. For a long time nothing was heard of him. Recently General Ameglio, commander-in-chief of the Tripolitan army, discovered that the boat had fallen into the hands of Arab pirates and been taken to Misorata where Dr. Fantoli is still a prisoner. The adventure recalls the old days of the Algerian raiders of the sea whose most famous victim was Cervantes.

SECOND PRIMARY GROWTHS IN THE REMAINING BREAST AFTER AMPUTATION OF THE OTHER FOR CARCINOMA.

BY

DOUGLAS DREW, B.S., F.R.C.S.,

SURGEON TO THE HOSPITAL FOR WOMEN, SOHO.

CANCER of both breasts is not infrequently met with either where the original growth has not been removed and dissemination of the disease has taken place, or where the original trouble has been removed, but in spite of treatment recurrence takes place. In both conditions the growth in the second breast is part of the process of general dissemination, and is usually associated with other local and internal deposits.

In my experience it is extremely rare to find a second solitary growth developing in the remaining breast after the lapse of two or three years, the patient being in good health and careful examination failing to reveal any evidence of secondary deposits in any other region. I have two such cases under my observation at the present time.

CASE I.

M., aged 53. First operation May, 1912; left breast. Remained well till August, 1915 (thirty-nine months), when the right breast was removed for a small growth in the breast tissue which had been present only a few weeks. The growth was a spheroidal cell carcinoma.

On examination of the patient, November, 1916 (fifteen months after the second operation), no evidence of any recurrence could be found either locally or internally.

CASE II.

A doctor's wife. First operation October, 1912; right breast. Remained free from trouble till about May, 1914, when a nodule was noticed in the left breast. The patient was very adverse from a second operation, so a tube of radium was inserted into the growth through an incision. No benefit resulted, so the patient was persuaded to have the breast removed; this was done in July, 1914 (twenty-one months after the first operation), and the patient is in active health at the present time (October, 1916), twenty-eight months after the second operation. Both tumours were spheroidal cell carcinoma.

These two cases are not brought forward as "cures," as only fifteen and twenty-eight months have elapsed since the second operation.

The question is, whether one is justified in regarding them as examples of a second outbreak of cancer, or, as I have described them, as a second primary growth.

Inasmuch as the interval between the first and second operation was only thirty-nine months in the one case and twenty-one months in the other, so that in neither case would it be correct to speak of a "cure," exception may be taken to the title that the growths in the second breast in the two cases were really of the nature of fresh outbreaks of the disease, but that they should be regarded as solitary secondary nodules.

Were this the correct explanation we should have expected to find other secondary growths in distant organs, the infection being carried by the lymph stream; if, on the other hand, the growth in the second breast was due to "permeation," it is almost certain that there would have been other local manifestations, so that I think the conclusion is justified that in each case it was a fresh outbreak of cancer.

It is interesting to note that in spite of the removal of so much of the skin of the thorax, together with both pectoral muscles on each side, the movements of the arms in each patient are practically unimpaired.

NOTE ON AN ORGANISM PRESENT IN THE BLOOD OF PATIENTS SUFFERING FROM "TRENCH NEPHRITIS."

BY

ROBERT L. THORNLEY, M.D.LOND., D.P.H.,

TEMPORARY LIEUTENANT R.A.M.C.

RECENTLY the blood of all cases diagnosed as "trench nephritis" admitted to No. — Casualty Clearing Station has been examined from the cultural point of view. The results have proved somewhat striking in that, with one single exception, every one of twenty-seven cases examined has shown the presence of an identical coccus.

About 10 c.cm. of blood are drawn direct from a vein into 10 c.cm. of a liquid medium, whose composition and method of making, as given to me by Sergeant H. A. H. Howard, B.Sc.Lond., R.A.M.C., is as follows:

To every 750 grams of minced heart muscle, from which all fat and large vessels have been removed, add 1 litre of water. Heat to 75° C. to destroy antitryptic ferments. Cool to 37° C., make alkaline to litmus, and add 1 per cent. liquor trypsin co. (Allen and Hanburys). Incubate for four hours at 37° C., acidify with acetic acid, bring to the boil, filter, make reaction + 15, and sterilize in the steamer for ten minutes on each of six successive days. To this add 5 per cent. "saline pea extract" and 3 per cent. sodium citrate.

The resulting medium is tubed and sterilized at 100° C. for fifteen minutes on three successive days. On no account must the autoclave be used.

To make the saline pea extract, mix 50 grams peaflour and 100 grams sodium chloride with 1,000 c.cm. water, steam for half an hour, and filter. The filtrate is sterilized at 100° C. for ten minutes.

The blood tubes are put into the hot incubator and examined about the fifth day. Strong haemolysis is a marked feature of growth.

Slides stained with carbol-fuchsin for ten minutes will be seen to contain minute cocci.

Subcultivations can be made on to ordinary agar or pea extract trypsin agar.

Microscopical and Cultural Characters.

Examined under the highest powers, the organism is seen to be an extremely minute diplococcus, with adjacent surfaces flattened against each other. It is usually seen singly or in groups, seldom in chains. They are non-motile, have no capsules, and do not stain.

It grows readily, as stated, on ordinary agar as a fine growth not unlike *Micrococcus melitensis*. It does not liquefy gelatine, on which it grows readily. It ferments glucose, lactose, mannite, sorbite, and saccharose within forty-eight hours, but not dulcite. There is no formation of gas in any of the sugars.

Agglutination tests performed against it with meningococcic and *M. melitensis* antiserums were negative in a dilution of 1 in 10.

A rat and a guinea-pig were each inoculated intraperitoneally with 1 c.cm. of a strong emulsion of the organism, which had been cultivated from a severe case. The rat was "sick" for twenty-four hours, and then appeared to recover. It was chloroformed on the third day. *Post-mortem* examination showed considerable enlargement of spleen, from which and from the heart's blood this coccus was recovered in pure culture. The kidneys were apparently normal. The guinea-pig appeared to be immune.

I hope to report further data shortly.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

RHEUMATOID ARTHRITIS APPARENTLY CURED BY "AUTO" COUNTER IRRITATION.

THE treatment of chronic rheumatoid arthritis by counter irritation and keeping down the ulcerated surfaces has, I consider, received substantial support from the following case.

L. H., aged 45, had suffered from rheumatoid arthritis in very bad form for nine years; nearly every joint was affected; he was only able to get about on crutches, and there was considerable emaciation. He came under my care two years ago. He improved considerably from the administration of arsenic, iron, strychnine, and iodides internally, good stimulating diet, fresh air, residence in a high altitude, and avoidance of all thermal water treatment.

Six months ago he developed glandular swellings in the neck, one on each side, about two and a half inches above each clavicle; they rapidly suppurated, and assumed the dimensions of large walnuts. He refused to have them opened, and I then explained to him that as it was his wish to allow them to break, it would be an opportunity for treating the arthritis by counter irritation in keeping the ulcerated surfaces open. The patient was much interested in the proposition, and gladly accepted the suggested treatment. The abscesses, after discharging,

broke down at their edges, until an area of about two square inches on each side remained for granulating. From the first, no irritating measures seemed called for to keep the surfaces open, so that I advised him to keep them antiseptic with alternate applications of boracic ointment and weak carbolic oil. They have not yet healed, but are doing so slowly, and, in a letter received from him on November 3rd, he wrote: "The abscesses are gradually going, the discharge is much less, and I have hope now that they are nearing the end of their journey. One marvellous thing is, of arthritis I have none."

Although the above counter irritation (if such it was) was not carried out on the recommended surfaces contiguous to the spinal column, I think that the remarkable disappearance of the arthritis suggests at least the effect of a cause, the cause being obviously here (in view of the fact that all other treatment for arthritis was suspended) the ulcerated surfaces caused by the abscesses.

London, W. C. T. GRIFFITHS.

THE ETIOLOGY OF LEPROSY.

IN each of twelve definite instances of leprosy, both nodular and anaesthetic varieties, I was well acquainted with in my practice there was absolute evidence to prove that the malady was not infectious. These lepers were not kept isolated, and the co-members of the family were quite healthy, and never showed any tendency to be infected during a little over two decades over which I have had them under my observation.

Two of the recent cases are of some interest to me. One is a girl, aged about 16 years, infected with nodular leprosy. She is now in the leprotic asylum near Panggon, Lower Perak, F.M.S., and her mother and other near relatives with whom this girl lived for years in India are out here as labourers, and are in good health. The nodules were faintly visible in the chin and lobules of the ears in this girl, and the disease was not quite apparent until the leprotic bacilli were detected in the nasal secretion.

The other case was in a young adult suffering from the worst type of the nodular variety; and as his appearance was so frightful and hideous no stranger dared to approach him. But his own mother, brothers, and their wives and children were all living in the same house in Madras, and every one of them was free from the disease. The mother, who was so much attached to this leper, he being her eldest son, was in constant attendance on him in the way of bathing him, washing his clothes, and attending to his other personal comforts. She was perfectly healthy, and I was an eye-witness to this for a pretty long time.

Isolation of the lepers in India was not compulsory some years ago, and consequently lepers were found scattered everywhere, and it will be a pity if the same state prevails even now. There has been ample evidence to show that a leprotic father can transmit the disease to the offspring without infecting the mother; and in some instances the other children, presumably through the same father, have been known to be quite free from the disease, and in these the fidelity of the mother was quite unimpeachable. How leprosy actually spreads needs therefore further investigation and scientific research by competent people who can spare themselves to such undertakings.

T. A. R. AIYAR,
L.R.C.P. and S.Edin., L.F.P. and S.Glasg.

Sitiawan, Lower Perak, F.M.S.

CONCURRENT MEASLES AND CHICKEN-POX.

I WAS greatly interested in the cases described under this heading in the JOURNAL of November 25th, p. 722, and I can give the following case in corroboration:

A few days after her return from school my daughter Phyllis, aged 12, developed chicken-pox April 14th, 1915, and measles April 17th. My daughter, Frieda, aged 9, developed chicken-pox April 27th, but had no attack of measles.

P. LAMBERT BENSON, M.D., D.P.H.Camb.

Steeple Claydon.

IT is proposed to establish a psychopathic institution in San Francisco for the treatment of the victims of the drug habit, defectives, temporarily insane persons, and alcoholics. The estimated cost is £100,000.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

PROGNOSIS AND TREATMENT OF SYPHILIS.

AT a meeting of the Southern Branch of the British Medical Association at Portsea, on November 23rd, Mr. G. COOPER FRANKLIN, ex-President of the Association, opened a discussion on syphilis. He began by referring to the causes of phagedaenic ulceration, and quoted Cooper's opinion, expressed in Miller's *Surgery*, that in prostitutes it was due to deficient food, uncleanliness, and alcoholic and sexual excitement. In the case of men, Mr. Franklin, speaking from experience at the Dreadnought Hospital, attributed it to the men contracting the disease before a long voyage, during which they had no suitable treatment. Mr. Franklin then cited ten cases of syphilis, all in men, which had been under his observation throughout their entire course in the years 1875–1900. He illustrated the effects of the disease on the patient himself; on his wife, if he married; and on his children, if he had any.

Case 1 contracted the disease at the age of 20, whilst a student in hospital. He was well treated, and married ten years later, having had no symptoms for five years except throat trouble in early winter months. He had no family, became alcoholic and died, aged 45, of liver and kidney disease. His wife is still alive and in good health.

Case 2 contracted a sore at the age of 20; he was well treated, married at the age of 30, had two children, both living; the elder was delicate for four or five years, but is now fairly healthy; the younger is well developed, but was subject to skin affection for the first two years of life. The wife has had good health throughout. The man had a sore on his leg two or three years after infection, which still gives him trouble, but he is still, after thirty years, in fairly good health.

Case 3, infected when aged 25, married four years later, when apparently in good health. Five years afterwards he developed general paralysis of the insane, and died in two years. His wife is healthy, but had no children.

Case 4, always a delicate man, contracted the disease at the age of 25. He was thoroughly mercurialized. He suffered much from his throat and from neuralgia of head and neck; a typically syphilitic ulcer discovered behind uvula. Twenty years after infection he had severe pains in the head, became melancholic, and died by his own act. He did not marry.

Cases 5 and 6 both contracted the disease under the age of 30. Neither married. No. 5 had liver disease and dropsy, and died aged 45. He was in good health until the last two years of his life. No. 6 was never strong. He died of pneumonia at the age of 48. He had suffered from a sore on the leg which rarely healed, and also from alopecia.

Case 7 was twice married. He contracted syphilis during his early married life. His first wife died young of some uterine disease (metrorrhagia), having had two children. Of the children by his second wife, one died, aged 2 years, covered with skin eruption. The next (twins) both died within six months also covered with eruption. One boy lived to the age of 10 or 11. He was blind from optic neuritis for one and a half years before he died from meningitis. The last baby, which only lived a few months, had a skin disease like the earlier ones. During early months of her last pregnancy the mother developed an abdominal tumour which grew to the size of a fetal head, believed to be renal or splenic. She took large doses of potassium iodide and had a normal delivery. The father became alcoholic, attempted suicide, and is now demented. One of the children underwent tracheotomy done for laryngitis.

Case 8, who contracted syphilis at the age of 23, was well treated, and married four years later. Shortly after marriage he had jaundice for two or three weeks. He has had two children, aged respectively 10 and 8, both markedly syphilitic. Two years after marriage his wife had psoriasis of both hands. The man developed diabetes, which, however, is very tractable to codeina and potassium iodide.

Case 9 contracted the disease at the age of 25. He was well mercurialized, and married about two years after the appearance of the secondary rash. He had no children. His wife had a mysterious illness. The patient became alcoholic, and is now mentally afflicted.

Case 10, a married man, aged 38 to 40, with two children, contracted syphilis four years ago, and infected his wife. He had psoriasis and sore throat; his wife sore throat only. No child has been born since the infection.

Of these cases seven married, one twice, infecting both wives. Three had no children; of the four who had children three had only two, the other seven or eight, of whom only four or five are living. Of the seven wives four were distinctly infected, as evidenced by skin disease and sterility. They are all alive. Of the seven syphilitic husbands two are dead, two alive but insane, one living but

diabetic, and two are "cured." Of the three unmarried men all died under 50, one suicidally and two from acute visceral disease. Of the ten cases five died, all under 50; five are alive, all under 50 (except one whose age is doubtful); only two are in good health and able to enjoy life. Mr. Franklin quoted Sir Jonathan Hutchinson's view, attributing the lessened influence of syphilis on women to pregnancies tending to eliminate the poison.

Dr. SHEAHAN inquired if in the local scheme any arrangement had been made for the consultation or co-option of local medical practitioners. He protested, on general principles, against the tendency of modern legislation for the State to take over all responsibility for the health of the individual from his to its own shoulders. He asked if the army and navy exercised their disciplinary powers over soldiers and sailors in respect of venereal diseases by refusing furlough to men suffering from the diseases in an infectious state. He believed that much could be done if wives known to be syphilitic could be induced to begin treatment directly after conception occurred.

Surgeon-General EAMES, R.N., replying as to the custom of the Services, said that in the navy a medical examination of the ship's company was made after a voyage, two or three days before arrival at the home port, and men found suffering from venereal and other diseases were discharged to hospital for treatment.

Dr. MEARNS FRASER (M.O.H.), in outlining the scheme of the Portsmouth Corporation, said that it was acting on the assumption that the surest method of securing the control of venereal disease was to provide the best possible treatment and to make this available for all comers, irrespective of means or place of residence. Provided patients realized they were being cured, there would be no difficulty in getting them to attend the treatment centre, and this was the first step towards the control of the disease. Treatment would, by arrangement with the hospital authorities, be provided at the Royal Portsmouth Hospital, and at the same time a thoroughly equipped pathological laboratory would be established under the control of a competent pathologist. Outfits for obtaining material from venereal patients would be supplied free to medical men, and no charge would be made for pathological reports supplied in regard to private patients. He felt that the appointment of a competent pathologist who would reside in the borough would be greatly appreciated by the local members of the profession. The corporation felt that the scheme could only succeed it it had the co-operation of members of the medical profession. It was realized that the provision of free treatment might adversely affect the pecuniary interests of medical men, but there was reason to believe that in this case the profession would be prepared to sacrifice its private interest to the public good; the corporation, therefore, had decided to appoint a special committee and to ask the local medical association to assist it by appointing to this committee several representatives, so that the views and advice of local medical men might be available in regard to the adoption of measures in this borough for the control of the disease. In conclusion, Dr. Fraser spoke against the compulsory notification of venereal disease, and urged the necessity for legislation to render illegal the treatment of venereal patients by quacks and other unqualified persons.

Dr. INMAN said the prevalence of syphilis in Portsmouth seemed to be so great that many years of observation of the out-patients at the local eye hospital had left the impression that the out-patient department could be turned down without serious loss to the community if the disease could be abolished. Refraction cases in great part, and various forms of disease, such as, for instance, conjunctivitis and iritis due to septic absorption, would have to be excluded from this sweeping statement. Syphilis affecting the eye was not common in the early stages of the disease. There was a certain amount of iritis in the secondary stage, but, generally speaking, the inflammations and degenerations, due certainly or probably to syphilis, occurred either in the tertiary stage or in the inherited form. Interstitial keratitis was common and was under treatment for a long period. It left opacities of the cornea, degeneration of the iris, lens, vitreous, choroid, and retina, optic atrophy, squint, myopia, glaucoma, and amblyopia in its wake, and these, in turn, required treatment long after the original inflammation had disappeared. At the school clinic syphilitic disease was seen in the fundus oculi when no history of definite eye affection could be obtained from the parents. Yet a recital of feeble health and non-thriving in most of the family followed, with a complaint that poverty and misery were the lot of the parents, notwithstanding care, thrift, and forethought. Two, three, and four children in one family had been known to suffer from interstitial keratitis or other syphilitic inflammation, even in cases where marriage had not taken place for ten years after infection and regular medical treatment had been carried out, though often for a period of only three or four months. Ocular paralyses, pupillary changes, degeneration of retinal vessels, vitreous opacities, detached retina, diseases of the central nervous system with eye symptoms, diabetic changes in the retina, weakening of the sclerotic, exophthalmic goitre, lacrymal obstruction, often could be attributed very reasonably to syphilis. A more definite history of infection could be obtained in Portsmouth than elsewhere owing to the fact that the greater proportion of the patients were connected in some way with the navy and army. The men were of known good physical condition at one period of their lives, and there seemed no reason for such calamitous loss of health, except syphilis, the presence of which could be often demonstrated when all knowledge of the disease was denied, and probably truthfully denied, by the patient. It was true that gonorrhoeal conjunctivitis was the cause of 30 to 40 per cent. of the blindness in the community, but once this disease was cured the final state of the patient was settled. With syphilis it was otherwise. There were worse things than blindness.

The Chairman (Dr. BLACKMAN) and Drs. HACKMAN, CRAWLEY, and COLE-BAKER also took part in the discussion.

Reports of Societies.

RE-EDUCATION OF WOUNDED.

AT a meeting of the Medical Society of London on December 11th, the President, Lieutenant-Colonel D'ARCY POWER, being in the chair, a series of demonstrations were given on the re-education of wounded men.

The Blind.

Mr. ARNOLD LAWSON said that at St. Dunstan's proper there was accommodation for 180 blind men, and for another 200 at Regent's Park College. Included in the scheme were also two large houses in Portland Place for officers, and two others in Paddington, and two convalescent homes, one in Brighton, the other in Torquay. After treatment and training the men were settled through the offices of an after-care department, and for this purpose the British Isles was divided into eight districts, six in England and one each in Scotland and Ireland, 125 men had been fully trained and settled. At present there were 260 at St. Dunstan's and the associated homes and 128 others either in hospitals or elsewhere awaiting treatment—a total of 388. For the purposes of the institution men were considered blind if through visual defects they were incapable of carrying on an ordinary existence and supporting themselves. A difficulty arose with regard to shell-shock cases of blindness; some had come to be treated as blind, others had been referred to convalescent homes, etc. A complete revolution in the training of the blind had been brought about by the war. Before, the inmates of institutions for the blind had chiefly been affected since infancy or were old people. The saving clause of the present situation was the youth and buoyancy of the patients. At St. Dunstan's there was an air of unforced cheerfulness. Self-pity was not permitted: they were taught to accept their lot as an inconvenience, not as a hopeless defect. This lesson was usually learnt in a short time. They were also taught to regain their independence, and for this purpose, after some preliminary drilling, were left to themselves without guides or other helpers on whom they could come to depend. Precautions were, of course, taken to render this course a safe one. The natural suspicion of the blind man had to be overcome, and at first presented a difficulty. They were

then given a routine training, first learning to read and write with Braille types. It was not easy for men to learn to read this type if their fingers had been rendered insensitive by their previous occupation, and typewriting proved easier. Next they were taught suitable handicrafts and trades. Physical fitness was assisted by Swedish exercises for those who could avail themselves of them, the instruction being given by a blind instructor, by rowing in the morning, and by walking, through the help of voluntary workers who took them out. Blind instructors also taught the various handicrafts, massage excepted. It had to be remembered that the blind tired more quickly than men with sight. After from seven to nine months' training the man was settled. This meant that a house was procured and he was set up in business, but he still needed supervision by the after-care department so that mistakes in his work might be corrected and he might be protected from the unscrupulous.

Masks for Face Wounds.

Lieutenant DERWENT WOOD, A.R.A., gave a demonstration of the taking of a mask of a wounded soldier, who was also wearing the finished plate, and exhibited a patient who had a pulsating wound of the cranial vertex, for which a shield covered with hair had been made as a protection. The patient was subject to epileptic fits. The procedure followed was described, the case of a man who had lost his right eye and orbital region and the base of his nose serving as an example. To take the plaster mould the cavity of the wound was filled with the usual dressing, and together with the left eye and eyebrow covered with gold-beaters' skin, all portions of the head not wanted in the mould being bandaged. The nostrils were blocked with cotton-wool. After the exposed portion of the face had been oiled, the plaster was mixed with tepid water and applied for five minutes. The mould was then removed, dried, and French chalked, and a clay or plasticine squeeze obtained from it, giving a positive model of the patient's dressed wound and the surrounding healthy tissues. This was fixed to a board on a modelling stand and a sitting from the patient with his wound undressed obtained. By modelling, the wound was reconstructed in the model in every detail, care being taken that the depths and widths of the wound were accurately measured and reproduced. The model being completed, it was cast and the plaster positive of the wound and its environment procured. Another sitting was then obtained and the portions which were to be hidden eventually by the metal plate were modelled in clay (or wax), the edges being blended to the uninjured parts of the face. This was once more moulded in plaster, and the edge of the proposed plate being marked on the negative, a cast was obtained and the edges trimmed to the marking; the artificial eye was then fitted to the lids from the back of the model, the plaster eyeball being dug out, the requisite thickness of the lids carefully worked down, the glass eye placed in position and the edges of the lids made good with thin plaster. The model was handed to the electrotyper and an exact reproduction by galvano-plastic deposit made in virgin copper $\frac{1}{32}$ in. in thickness, finally well coated with silver. Bands were soldered at the back to keep the eye in place. The plate was again fitted to the patient, and strong spectacles were adjusted at a suitable angle to give a well-distributed pull on the plate. When a large plate was necessary an elastic band around the head was required. The final sittings were devoted to the pigmentation of the plate. False hair on eyebrows and eyelids, it was found, would not withstand the weather; for the eye, Mr. Wood said he had adopted tinfoil split by scissors and soldered into the lid, and for the eyebrows pigment applied to the modelled forms.

Re-education in Walking.

Dr. JAMES B. MENNELL gave a demonstration on limping and the re-education of walking. After injury of any sort, save the most trifling, some muscle or group of muscles always tended to waste; and even if wasting was general throughout a limb, it would nearly always be more marked in one muscle group than in others. In the performance of such a complicated action as taking a walking step most of the muscles in the body co-operated. He illustrated this by showing the effects on the gait of holding the arms in various positions, and pointed out that if the action of extraneous muscles had so marked an effect, lack of co-ordination of the muscles more intimately concerned must have a still more deleterious action. Further, in a weakened muscle a longer latent period elapsed between the receipt of a stimulus and contraction than was required in health. Hence, after injury, direct or reflex, a muscle would act more slowly and more feebly than its uninjured fellows. In re-education for walking the chief aim should, therefore, be to train the injured muscle up to its fellows, and the latter down to the former. In other words, co-ordination must be established between muscles whose relative activities had been altered. Moreover, it was just as necessary to train down the sound limb to the level of its more feeble fellow as it was to train up the latter. He then showed how this could be done—first, by simple swinging exercises of both legs in unison and alternately, then by allowing a portion of the weight to fall on the injured limb, and finally by splitting a full walking step into quarters, each quarter being practised separately until perfect co-ordination had been re-established.

Voice and Speech.

Mr. CORTLANDT MACMAHON dealt with some forms of voice and speech affections in soldiers and the methods he had employed to remedy them.

(*a*) *Shell-Shock Stammering.*—In this there was chiefly a difficulty in the production of the voiced consonants and vowel sounds, but the general difficulties of the ordinary stammerer were little in evidence. It could be described as a more or less severe inhibition of speech and was accompanied in some cases by amnesia. The condition was suggestive of aphemia. The prognosis was usually good, and in mild cases the condition was better left alone, for with improvement in the patient's general condition the stammer disappeared. In more severe cases instruction should be given, and as a preliminary the patient should be taught to fill the lungs in a proper manner by inferior lateral costal expansion, but without raising the upper part of the chest. The next step was to teach the main vowel sounds and their resonator positions—namely, the correct position of the tongue and lips and the distance between the teeth for each main vowel sound. Then the two varieties of consonants, the "voiced" and the "breathed," could be taught. All this was easily acquired, and with a little practice the correct production of the vowel sounds and consonants became automatically performed. Generally this amount of instruction, combined with steady practice in breathing exercises, was sufficient for a stammerer who had only commenced to stammer from shell-shock, and had not acquired secondary physical disabilities incidental to stammering of long standing. There were also many stammerers whose defect had dated from childhood, but had been intensified by shell-shock or wounds, and others whose affliction had been overcome, but had thus been renewed. These were more difficult to deal with, needing more definite and lengthy instruction, but mental strain should be avoided. Generally the laryngeal type of stammerer, who had difficulty in producing the vowel sounds and voiced consonants, was more easily cured than the stutterer. The treatment was both mental and physical, some patients needing more of one and some more of the other kind.

(*b*) *Aphasia.*—The cases treated had been nearly all examples of aphemia in which hearing, writing, and reading were normal, but speech was either almost non-existent or produced with great difficulty. The memory was usually somewhat defective. The same method of breathing should be taught, which by calming the emotions promoted recovery. The aim of treatment was to provide as complete muscular and mental relaxation as possible, to explain that voice was a matter of resonance in the head and chest, and originated only in the vocal cords, and afterwards to inculcate the simple vowel sounds, which the patient usually acquired in a few minutes. Then simple words were learnt. Occasionally normal speech was immediately possible if relaxation of effort could be obtained; this explained the dramatic return of speech which sometimes occurred. More often the recovery was steady, but rather slow.

(*c*) *Functional Aphonia.*—The treatment of this condition was more difficult in soldiers than in civilians because the original cause was more severe and the treatment was attempted too soon. Complete rest in hospital

and subsequently at a convalescent home should precede treatment, for the longer the aphonia had existed the easier was it to cure. Perfectly performed breathing movements, which the author had employed for many years in the treatment of all kinds of speech and voice affections and of neurasthenia, were of special use in shock. The patient should lie recumbent with the eyes half-closed and take steady, long breaths while the operator placed his hands upon the patient's lateral thoracic regions. A rest should be taken after every six movements. The patients should be told that they were undergoing a semi-hypnosis, and that by this breathing they were enabled to overcome the feelings of lost control and depression and were improving their general health by oxygenating their blood. They should afterwards carry out the exercises thrice a day for five minutes each time, or when they felt the need for them, and perform them at night continually, but more gently, until sleep came. The demonstration was illustrated by records of several cases.

PATHOLOGY OF CANCER.

AT the meeting of the Pathological Section of the Royal Society of Medicine on December 5th, when Dr. J. A. MURRAY was in the chair, Professor S. G. SHATTOCK and Dr. L. S. DUDGEON read two papers on investigations carried out jointly.

Grafting Experiments.

The first related to grafting experiments made with normal mouse tissues treated with cell-free extract of mouse cancer, or admixed with the tumour pulp. The object of the experiments was to ascertain whether cancer cells possessed biological properties which would incite normal cells to participate in their purposeless or anarchical growth. For this purpose in one set of experiments a cell-free extract of mouse cancer (No. 63, Imperial Cancer Research) was prepared by shaking the tumour pulp in Ringer's fluid to which glass had been added, so as to destroy the cells. The cell free extract was then used as a medium in which to soak the normal tissues, which were afterwards grafted subcutaneously. The normal tissues used were (1) mouse testicle and (2) mouse embryo, so as to include all the tissues with their endocrinal interactivities. In neither case did any neoplasm arise, although in the second a slight growth occurred from the fragments of fetal cartilage—a result which takes place independently, however, of any such supplementary factor. As a better extension of the second experiment the tumour itself was minced together with mouse embryo. Fetal tissue of every kind was thus implanted amidst the growing cells of the tumour. No mixed neoplasm arose, although the tumour with which the experiment was commenced was afterwards subcultured fifteen times, and the subcultures rejuvenated with mouse embryo on three occasions. The only tissue which survived was the fetal cartilage, the fragments of which underwent a slight amount of growth; but in no instance did the cartilage present any indication of a sarcomatous transformation.

Feeding Experiments.

The other paper related certain results of feeding mice with mouse cancer. The tumour used was that known as No. 63 (Imperial Cancer Research). The feeding was commenced in May, 1914. For the supply of tumours, mice which had been subcutaneously inoculated were from time to time killed, the tumour being afterwards removed and pinned to a slip of wood; the animals were fed, in addition, with oats, carrot, boiled potato, etc.; they were four in number:

1. March, 1915: One of the four, a female, died. It had received forty-two tumours, the experiment having extended over a period of ten months. A large growth filled the upper part of the mediastinum. In the mesentery there was an enlarged lymphatic gland. Histologically, the growth was an infiltrating round-celled sarcoma; it contained no giant cells. On the lung there were a few minute nodules, which exhibited the same structure, as did also the mesenteric gland referred to.

2. April, 1915: A second mouse was killed, as it had developed a prominent growth in the left labium. It had received forty-two tumours. The growth was found to surround the lower part of the vagina, but without protruding from the canal. Microscopically, it proved to be an invasive endothelioma.

3. A third mouse was killed in July, 1915, since the abdomen had become enlarged, without pregnancy. The enlargement, however, was found to be due to the growth of two masses of fat about the uteri, probably following the close of the reproductive function.

4. The last of the mice (male) died in August, 1916. It had received seventy-two tumours. On one lung there was a small solid formation, which was microscopically of compact, uniform structure, devoid of leucocytes, and consisting of epithelial cells; the surrounding tissue was normal. It was wholly unlike a bronchopneumonic nodule, and the alternate view was that it was a primary neoplasm. The authors possessed a section of a tumour, the size of a pea, which was found unexpectedly in the human lung at a *post-mortem* examination, and which was structurally identical with the foregoing, and, like it, might be regarded as a primary formation arising from the epithelium of the pulmonary alveoli.

In commenting upon these results the authors remarked that as none of the new growths were identical in structure with that used for feeding the animals they could not be viewed as due to cell implantation. This diversity was parallel with the fact that among the tenants of "cancer houses" the disease affected different organs, and often those deeply seated, where direct implantation was out of the question. In cancerous families it was equally true that the disease might involve different organs, and be of different histological structure in different members; and here, moreover, the appearance of sarcoma might be intermixed with that of carcinomata.

There was, however, a second hypothesis of transference as a post-natal phenomenon, which the various facts brought together suggested—namely, that the cell might be the vehicle of an ultramicroscopic virus symbiotic with it; and that if transplantation of the cell failed, the virus might be freed, and after its absorption and distribution, might infect some structure of a second individual, provided there were any such part prepared for its symbiosis. Whether the virus in hereditary transmission was itself transferred, or whether the transmission were limited to the aptitude of certain cells for post-natal infection, was a matter that need not be discussed.

It was clear, however, that the parasitic theory, as rehabilitated in the form of an ultra microscopic symbiobe, was not disposed of by the facts established in regard to heredity. And the same might be said of the results of the experimental prophylactic immunization against grafted mouse cancer by the antecedent subcutaneous injection of mouse blood, or of mouse embryo, or mouse skin; they so modified the fate of the grafted cells that the virus was rendered harmless, since there were no other cells prepared to symbiose with it

If the results of the mouse feeding experiments recorded were to be interpreted on a parasitic hypothesis, it would be, then, that the carcinogenic virus was freed on the destruction of the ingested cells, and transferred after absorption, to the body of the host, wherein it incited the formation of a malignant neoplasm in some spot where the cells were prepared for its symbiosis.

[Dr. J. B. CHRISTOPHERSON showed a large salivary calculus removed from the submaxillary gland. Professor S. G. SHATTOCK described the histology of a singular formation for which he proposed the name "pseudotuberculoma silicoticum"; the case is recorded by Mr. C. R. Nitch elsewhere in this issue.]

ACQUIRED SYPHILIS OF THE LUNGS.

A Correction.

IN the report of Dr. F. Parkes Weber's paper on acquired syphilis of the lungs read at the Section of Medicine of the Royal Society of Medicine (BRITISH MEDICAL JOURNAL, December 9th, p. 802), there are two errors: Column 1, line 30 from the bottom, for "by a patch of syphilitic leucodermia," read, "by typical syphilitic leucoderma"; column 2, line 12 from top, for "was not likely to be bad," read, "was likely to be bad."

AT a meeting of the West London Medico-Chirurgical Society on December 1st Dr. Thomas B. Hyslop read a paper on the psychology of warfare, in which he dealt briefly with the subject under the headings of anger, fear, and power and its misuse. He noted certain phenomena connected with hallucinations in times of stress, drew attention to the prevalence of functional disturbances of the nervous system, such as temporary amnesia and aphasia, and dwelt on what he considered to be the most striking problem for consideration—namely, the unmasking of primitive instincts. The paper was discussed by the president (Dr. A. Saunders, who was in the chair), and by Dr. H. A. Smith, Dr. Buzzard, Mr. A. Baldwin, and others.

Reviews.

THE SEX COMPLEX.

DR. BLAIR BELL, in his book entitled *The Sex Complex*,[1] states that he has endeavoured to trace by his own experimental investigation and clinico-anatomical observations the influence of the endocritic glands upon one another upon the genital organs, and upon the general metabolism of the body, and that he has been able to show clearly the nature of the association between the different organs. He points out that most investigators have shown reluctance in enunciating general principles concerning the correlation of the internal secretions in regard to the genital functions; consequently he feels the necessity of giving a lead, although he adds that it is impossible, at the present time, fully to correlate all the functions of the endocrine glands. He deals especially with the female genital system, and the position he takes up may best be summarized in his own words:

> The ovary is concerned in the temporary function of reproducing the species, and by its hormones or internal secretions of bending the metabolism of the body to this purpose.
>
> On the other hand, the rest of the endocritic system is related to the genital function in various ways.
>
> First, some of the members, the thyroid, pituitary, and suprarenals, influence the development and subsequently preserve the integrity and activity of the genitalia; while the others—the thymus and possibly the pineal—appear to prevent sexual precocity.
>
> Second, all the endocritic organs acting in harmony control the metabolism in response to the necessities of the genital functions, but in addition they adapt the whole organism to the possibility of the situation, and regulate the secondary characteristics, both physical and psychical, to suit the needs of the individual. Once, however, the reproductive organs are removed or undergo atrophy, the genital functions of the rest of the endocritic system cease, and the rearrangement of the metabolism that follows produces the symptoms of the menopause. Contrariwise, insufficiency of the thyroid, pituitary, or suprarenals may cause the cessation of the genital functions, with atrophy of the uterus.

This is the position taken up by one who has had a large clinical experience, and who supports it by a series of valuable investigations upon animals, which formed the basis of the Arris and Gale Lectures at the Royal College of Surgeons in 1913.

The second part of the book is concerned with pathological considerations. The author commences with an interesting account of derangements in the structural development of the genital organs, and gives some detailed clinico-anatomical descriptions of cases illustrated by photographs and microscopic drawings. Next he discusses derangements in the functional development of the genital organs in relation to the endocrine glands, precocious puberty, absence of the onset of puberty, incomplete puberty, and delayed puberty. This discussion will be of special interest to the student and practitioner, as will also the chapter dealing with derangements of the sex characteristics, and of the fully established genital functions in relation to psychosis, vasomotor disturbances, and general metabolic disturbances. We confess to finding the chapter on psychosis rather disappointing. The references to literature are singularly few, and those that are given are not comprehensive. No reference, for example, is made to the studies of Parhon and Ghiorgiani, who studied the menstruation in 216 cases of which 35 were suffering from dementia praecox. In 25 out of 35 cases they found amenorrhoea. They considered that ovarian changes are frequent in dementia praecox, and that they are connected with mental disorders and not with age. These observations support Mott's conclusions based upon the observations of Dr. Laura Foster by serial sections of the ovaries in a large number of cases of normal and insane persons, including twelve cases of dementia praecox. We think, therefore, that the following statement by Blair Bell is hardly justified: "Mott has recently expressed his belief in the important part played by the internal secretions in insanity, but the arguments set forth by him do not break any new ground." If the author had looked more fully into Mott's work he would have seen that Dr. Laura Foster, whose investigations extended over two years, had at least attempted to break new ground under his direction. The observations of Mott and Brun on the changes in the nervous system in hypothyroidism probably afford an explanation of the depression and slow mental reaction observed in this condition. Again, we should have expected a reference not only to Cannon's work but Elliot's on the function of the suprarenal gland.

The book is well got up; the clinical and anatomical illustrations are numerous and, with a few exceptions, excellent. The author admittedly attempts to establish general principles upon data which as yet are insufficient; moreover, he is not always comprehensively accurate in his quotations from authors, and the bibliography of this great subject is inadequate. For these reasons the book compares unfavourably with Marshall's *Physiology of Reproduction*. Nevertheless, the individual work and the originality of the author's ideas, combined with an easy style, are of such value as far to outweigh faults of omission or commission in reference to such an extensive literature as that of the endocrine glands and the sex complex. The book has this merit—that the busy practitioner or student can take it up at leisure, and the perusal of any chapter in it will arouse his interest. He will find not only much to stimulate him in the study of the sex problem, but also that new ideas are suggested regarding the treatment of women suffering from diseases or disordered function of the sexual organs.

[1] *The Sex Complex.* A Study of the Relationship of the Internal Secretions to the Female Characteristics and Functions in Health and Disease. By W. Blair Bell, M.D.Lond. London: Baillière, Tindall, and Cox. 1916. (12s. 6d. net.)

SCOLIOSIS.

THE monograph on *Lateral Curvature of the Spine*,[2] by R. W. LOVETT, of Boston, is undoubtedly a standard work in the English language. In the third edition the book is kept well up to date; a chapter on the history of scoliosis, apparently taken largely from the German, now added, enhances the interest of the work. In this connexion, however, we would remark that the name of the coiner of the word "orthopaedia" was not André, but Andry, Dean of the Medical Faculty of the University of Paris. The section on treatment has been largely rewritten in the light of further experience gained of the forcible method of correction by plaster-of-Paris jackets. The extravagant claims made for a particular adaptation of this method six years ago have not been justified by experience. Fifty surgeons practising orthopaedics were circularized by the American Orthopaedic Association. Only one of them claimed to have brought about a cure of undoubted structural scoliosis by forcible correction, and he afterwards retracted the claim. Nevertheless there is evidence of improvement by well-established forcible methods. With many other experienced orthopaedists Dr. Lovett believes that better results may thus be obtained than by gymnastic treatment. Certainly he has published evidence of good results.

[2] *Lateral Curvature of the Spine and Round Shoulders.* By R. W. Lovett, M.D.Boston. Third edition, revised and enlarged. London: W. Heinemann. 1916. (Medium 8vo, pp. 224; 180 illustrations. 8s. 6d. net.)

THE OMENTUM.

THE author of *The Omentum: its Embryology and Histology; its Physiological Uses*,[3] informs us in his preface that he is still "investigating and originating," and that the present reprint is to be followed by "a whole volume." We imagine that most readers on this side of the Atlantic will await the larger issue with patience. The thesis of the writer is that when the endothelial buds grow out from the primitive veins to form the lymphatic basis, certain of the cells in the neighbourhood of the right sacculus lymphaticus jugularis remain isolated, and later migrate into the dorsal mesogastrium, there to form the spleen and omentum. He is very emphatic on what he terms the "entity of the omentum," declaring that the peritoneum has no closer relationship to it than it has to the viscera of the abdomen. In another place he compares the peritoneum, which he describes as consisting of parietal and serous layers, to "varnish." The chief function of the omentum, in the author's opinion, is to supply a fibrinous exudate in cases of inflammation, or, to use his own words, "to undo the dirty work done by a careless or incapable surgeon who burglarizes the belly." Such a view for those who believe that nature makes structural

[3] *The Omentum: its Embryology and Histology; its Physiological Uses.* By H. Crouse, M.D., F.A.C.S. Reprinted from the Bulletin of the El Paso County Medical Society. 1915. (Med. 8vo, pp. 67; 42 figures.)

provision for pathological exigencies has perhaps something to commend it, but if we are to accept it we are at a loss to understand the analogy between the omentum and the spleen, an analogy upon which the author is never tired of insisting.

The text is not remarkable for its perspicuity. Take for instance such a sentence as this: "My conclusion is that the excess of fibrin which appears in the presence of peritoneal inflammation, whether produced by chemical, bacterial, or mechanical irritation, is but the exudation of a product produced by the living endothelial cell metamorphosed into the large mononuclear lymph cell in the omental special structures, the large mononuclear lymph cell mitosing into the polynuclear cell; and that in each stage of cell change the fibrin-producing ability of the original endothelial cell is retained,"—a sentence, moreover, which to our mind betrays an ignorance of physiological processes.

NOTES ON BOOKS.

MAJOR P. M. ASHBURN, Medical Corps, U.S. Army, has written a general account of *The Elements of Military Hygiene*,[4] especially arranged for officers and men of the line. It contains a quantity of useful advice, and is divided into three parts, dealing respectively with recruits, the causes of disease, and the prevention and control of epidemics; there is a supplement on the prevention of mental and nervous diseases. The book is interesting, but gives the impression of having been written in the library rather than in the field; it deals in generalities rather than the particulars required by the practical man.

Dr. J. M. DALZIEL'S *Hausa Botanical Vocabulary*[5] is a book that should be of great service to travellers in that far country, particularly if they chance to be either botanists or medical men. It contains an alphabetical list of the Hausa names for plants, with their Latin names and brief details of their appearances and uses. At the end of the book is an index to genera and popular names. One may note that the Hausas chiefly use castor oil externally "for sores on camels, etc." *O sancta simplicitas!*

Paton's List of Schools and Tutors,[6] now in its nineteenth annual edition, is a book compiled to aid parents in the choice of schools for their children, and tutors or coaches for those who cannot go to school. It begins with classified lists of schools of all sorts, and goes on with several hundreds of pages of advertisements of schools and colleges all over the United Kingdom.

[4] *The Elements of Military Hygiene Especially Arranged for Officers and Men of the Line.* By P. M. Ashburn, Major, Medical Corps, U.S. Army. Second edition. Boston and New York: Houghton Mifflin Co. 1915. (Cr. 8vo, pp. 359. 1.50 dols. net.)

[5] *A Hausa Botanical Vocabulary.* By J. M. Dalziel, M.D., B.Sc., D.T.M., West African Medical Staff. London: T. Fisher Unwin, Ltd. 1916 (Med. 8vo, pp. 119. 6s. 6d. net.)

[6] *Paton's List of Schools and Tutors. (An Aid to Parents in the Selection of Schools.)* Nineteenth annual edition, 1916-1917. London: J. and J. Paton. 1916. (Cr. 8vo, pp. 999; illustrated. 2s.)

MEDICINAL AND DIETETIC PREPARATIONS.

Dial-Ciba.

DIAL-CIBA is the name given to a preparation the chemical constitution of which is di-allyl-barbituric acid or di-allyl-manolyl-urea. Veronal is di-ethyl barbituric acid, or di-ethyl-manolyl-urea. Dial-Ciba is claimed to be a relatively more powerful hypnotic than veronal, so that the dose is smaller. It is said to be less toxic than veronal, and to be completely broken up in the body, so that none can be recovered as such from the urine. It is freely soluble in warm water, alcohol, and ether. The drug appears to come within the provisions of the poisons schedule, which includes all alkyl derivatives of barbituric acid. It is put up in tablets, each containing 1½ grains, and the agents of the Swiss makers are, in this country, the Saccharin Corporation, Limited, 36, Queen Street, Cheapside, E.C.

THE health service of the military government of Paris has established dispensaries for women munition workers in eight factory centres. In connexion with the dispensaries it is intended to establish lying-in services, crèches where newborn babes will have the advantage of the most recent advances in puericulture, and mutual aid societies for women when sick.

TRINITROTOLUENE POISONING.

[OFFICIALLY COMMUNICATED BY THE MINISTRY OF MUNITIONS.]

BEFORE August, 1914, there had been little practical experience of the toxic action of trinitrotoluene (T.N.T.). No ill effects had been observed from the small quantities used, and it was generally believed to be much less toxic than dinitrobenzene, which had been manufactured in this country on a small scale for many years, and been used as an ingredient of explosive powders in a proportion rarely exceeding 15 per cent. During the past year, however, T.N.T. has shown itself to be dangerous to the health of at least a minority of workers coming into contact with it, and has produced fatal toxic jaundice in fifty cases out of many thousands of workers engaged.

As soon as the dangers from T.N.T. became obvious, administrative measures for their control, including medical supervision in all the factories, were taken, and scientific investigations into the modes of action of T.N.T. were organized. Whatever light is being thrown upon T.N.T. poisoning by such investigation is communicated to the responsible medical officers in the factories concerned for their guidance. Many cases of illness, however, attributed rightly or wrongly to T.N.T. poisoning, have, or may, come to the notice of medical men outside the factories, and it appears desirable accordingly to make generally known to them the present state of knowledge in this matter, as on them now devolves the duty of notifying toxic jaundice, contracted in a factory or workshop, to the Chief Inspector of Factories at the Home Office, London. Apart from such statutory notification, communications from medical men based on observations of any serious effects attributed to T.N.T. would be valued, and might be addressed to the same quarter. It is hoped to make in the early future further communications of results obtained by investigation.

Trinitrotoluene, also known as T.N.T. and trotyl, is a high explosive obtained by nitrating toluene—a product of coal-tar distillation. Toluene is a benzene compound in which one hydrogen atom of benzene (C_6H_6) has been replaced by the radicle CH_3. In the process of nitration three other hydrogen atoms are replaced by the nitro radicle (NO_2), and the formula for T.N.T. may be written, $C_6H_2(NO_2)_3CH_3$. This body is solid at ordinary temperatures, in which state it can be reduced to a fine powder; it melts at about 80° C.

When the skin or hair is exposed to T.N.T. by contact, a characteristic yellow or tawny orange stain is produced, which lasts in the integument for some weeks. Derivatives of T.N.T. produced by the action of alkalis have characteristic colours; if a dilute solution of T.N.T. is treated with alcoholic potash, a deep pink colour results changing to purple and then turning brown. Skin which has absorbed T.N.T. has a bitter taste to the tongue, which is removable by solvents of T.N.T. but not by water, as in ordinary washing.

T.N.T. is soluble in oils and greases as well as in acetone, ether, benzene (benzol), xylene (xylol), and other compounds, and the importance of this will be referred to later. Alkaline alcohol changes the yellow stain in the skin to pink or purple, and the T.N.T. thus chemically changed is soluble in and can be washed out by water.

T.N.T. is used alone as a fine powder, or in a flaked condition, or in the molten state from which T.N.T. in vapour escapes and is deposited in the form of a fine crystalline sublimate upon any surface of lower temperature than about 70° C. When mixed with 40 per cent. to 60 per cent. of ammonium nitrate it is known as amatol, and with 20 per cent. of ammonium nitrate as ammonal. T.N.T. as used is often impure, and contains traces of dinitrobenzene and other similar bodies, but investigation has produced no evidence of its poisonous properties residing in impurities. Pure and crude T.N.T. are equally toxic, and in no cases have the separated impurities been found more potent than pure T.N.T. The separate T.N.T. isomers have also been carefully tested, and their toxicity appears to lie either at or slightly below the toxicity of T.N.T. Of the cases showing jaundice about 27 per cent. have arisen from pure T.N.T., 67 per cent. from amatol, and 6 per cent. from ammonal. Possibly the hygroscopic nature of ammonium nitrate may assist absorption through the skin.

DINITROBENZENE POISONING.

A natural guide to the new experience of T.N.T. toxicity is to be found in the older knowledge of that due to dinitrobenzene (D.N.B.). It has long been known that D.N.B. may be readily absorbed by the skin, and it may be supposed that this absorption is affected or aided by the solubility of D.N.B. in the cholesterin fats of the skin or of greases used either in factory processes or as ointments. It may, perhaps, pass through the skin by the mechanical inunction of minute particles.

The most obvious results of D.N.B. poisoning by skin absorption are changes in the red blood corpuscles. As in nitrite poisoning, there is a conversion of oxyhaemoglobin to the more highly oxidized form methaemoglobin, and this change, if large in amount, produces breathlessness and cyanosis (both removable by breathing pure oxygen), which last until the body has been able to reduce the methaemoglobin to the natural form. Beyond this simple chemical result there may be, when the poisoning is more severe, haemolysis, with degeneration of the corpuscles, and escape of methaemoglobin into the plasma. In severe cases evidence will be found not only of destruction of the red corpuscles but also of activity in the blood-forming organs; nucleated red corpuscles may be found in severe cases, with evidence of imperfectly developed corpuscles, as shown by the occurrence of basophile granulations, polychromasia, and variations in shape and size. Lymphocytosis may also occur.

If the dosage of absorbed D.N.B. is not too great, blood formation seems able to keep pace with blood destruction; cessation from work for a short time enables the blood to recover rapidly from the effects of poisoning.

In D.N.B. poisoning these effects upon the blood are by far the most prominent feature. In very rare cases toxic jaundice may occur. Thus, in 1906 a dinitrobenzene worker after three months' employment died in the Huddersfield Infirmary, having been admitted for symptoms of cyanosis, vomiting, jaundice, and dyspnœa. *Post mortem* the liver was stated to have resembled that of acute yellow atrophy.

These facts suggest that (*a*) while D.N.B. upon absorption produces in all persons alike its chemical effects in the blood, varying in degree according to dosage (this being dependent again upon conditions of work, precautions taken, and perhaps upon varying greasiness or permeability of skin), and according to individual powers or opportunities for blood recovery; (*b*) it produces as an additional phenomenon liver degeneration only in a small minority of persons in whom the body cells are specially susceptible to the poison.

CHLOROFORM AND DOPE POISONING.

Upon this view of D.N.B. poisoning, an analogy to it may be found in chloroform poisoning. In the vast majority of patients chloroform only shows its anaesthetic action. In a very small minority, however, it may also give rise to degeneration of the body cells, especially of the kidney or of the liver, and in the latter case it may kill by liver degeneration and atrophy, with accompanying "toxic jaundice."

A further analogy may be drawn from facts recently made prominent in connexion with the toxic jaundice which became serious in this country for the first time towards the end of 1914 among persons employed in "doping" aeroplane wings, as the result of the presence in the dope of tetrachlorethane ($C_2H_2Cl_4$), which, inhaled as a vapour, acts upon nervous centres and is also a powerful liver poison. The toxic jaundice so caused has now happily ceased since tetrachlorethane has no longer been an ingredient of any aeroplane dope. During the time of its use at least seventy cases of jaundice with twelve deaths are known to have occurred. In the fatal cases the liver and kidneys were always the organs principally affected, and with changes indistinguishable from those to be described as induced by T.N.T. Alteration in the blood was absent, thus distinguishing the cases from toxic jaundice caused by nitro-derivatives of benzene and toluene. Here, then, we have a body, closely allied chemically to chloroform, which, while its anaesthetic properties as used industrially are not so prominent, finds a much larger number of persons susceptible to its toxic action on the liver.

TRINITROTOLUENE POISONING.

In view of the old experience of D.N.B. poisoning, it would appear *a priori* likely that T.N.T. can be absorbed in a dangerous degree by the skin, and recent experiments establishing this absorption will be mentioned below. Fine dust and fumes will reach, besides the exposed skin surfaces, the mucous membranes of nose and mouth—perhaps even the lungs themselves—and must inevitably be swallowed either in the saliva or with the mucous secretions from the nose and windpipe.

T.N.T. may be recovered unchanged from the faeces, and is probably there present in most of the workers. In the urine it does not exist free except by contamination during collection, but in the great majority of all workers it is present in greater or less amount in the urine, though in a combined state. In properly collected urine, not directly contaminated with T.N.T. dust, T.N.T. solvents fail to extract any of the substance. Its presence may be shown, however, by liberating it by acid from a compound in which it is fixed, when it may be revealed by its ordinary reactions. This urine test will be given in detail below. Further investigation is now in progress, but it would appear probable that free T.N.T. in the intestine is combined in the presence of reducing substances, just as other aromatic bodies in ordinary digestion of proteins are converted to ethereal sulphates, and so eliminated harmlessly by the kidney.

It appears at present best to group the symptoms of the poisoning under the following heads:

1. *Dermatitis.*

This appears to be due to a direct irritant action upon the skin. Some persons are more susceptible to it than others; the effects, like those of other irritants, are increased by flushing and perspiration, and by mechanical friction. Further details will be given below.

Some observers have thought that persons specially susceptible to dermatitis are in some rough proportion less susceptible to T.N.T. poisoning in the other ways to be mentioned. If further observations show this to be true, it may be a sign that some skins hold the T.N.T. in combination and suffer local irritation, while other skins allow a readier passage of it to the blood.

2. *Digestive Troubles.*

Gastritis, with abdominal pain, vomiting, constipation (a very constant symptom) with flatulence and distension, may all be early symptoms, and may appear in the absence of actual liver degeneration. It would seem probable that T.N.T. may act as an irritant in the stomach or intestines, as it may in the skin, independently of internal toxic effects.

3. *Blood Changes.*

These appear to be the same in kind as, though less in degree than, those mentioned already for D.N.B. The presence of methaemoglobin may be demonstrated commonly in the blood of workers, though cyanosis and breathlessness are much less evident than in the case of D.N.B. poisoning. Further investigations upon the precise changes in blood are in progress. There seems little reason to doubt that those already recognized are due to a direct action of T.N.T. introduced to the blood as such by absorption from the skin or from mucous surfaces.

4. *Liver Degeneration, "Toxic Jaundice."*

While the blood changes due to T.N.T. absorption are less noticeable than with D.N.B., T.N.T. appears to produce cell degeneration more readily, with the resulting toxic jaundice when the liver is involved. Even with T.N.T., however, only a small minority of persons under present conditions of work have shown signs of toxic jaundice, and the fatal cases have been few in relation to the great numbers of workers engaged.

Upon the comparison already made between the toxic effects of D.N.B. with those of T.N.T. it may be suggested that the very prominence of blood changes due to the former diminishes, by the attention it arouses, the chance of grave poisoning of the liver, and that in the case of T.N.T. the comparatively small note of warning given beforehand allows toxic jaundice to supervene in a certain number of workers who are not withdrawn in time.

The actual signs and symptoms in particular cases will be varying combinations of those in these groups.

Physical Signs.

Evidence of gradual absorption is shown by pallor of the face and an ashen-grey colour of the lips, tending to disappear if the worker becomes excited, as by medical examination. Sometimes the lips and tongue are deeply cyanosed. The tongue is generally free from fur. Abdominal distension is usually pronounced.

Jaundice may be conjunctival or general, and often appears suddenly without preliminary warning, rarely before the fourth week of employment. The liver dullness then is variable and no prognosis can be based on it, but it has been known to diminish rapidly towards the termination of a fatal case. The liver area may be tender. Ascites is present in a few cases. Respiratory distress is not noticeable when the patient lies in bed. Pyrexia has occasionally been observed in severe cases, which have eventually recovered. Neither bradycardia nor pruritus are common. Bile is present in the urine—occasionally albuminuria and intermittent glycosuria. In fatal cases coma and delirium supervene suddenly, usually about three weeks after the first appearance of jaundice.

Two deaths have occurred among T.N.T. workers from profound anaemia (unassociated with jaundice) with reduction of the red blood cells to one million per cubic millimetre. Examination of blood films showed the cells of unequal size, but there were no irregular shapes, poikilocytes, or nucleated red blood cells. Microscopical examination excluded pernicious anaemia. The symptoms in one case began with an attack resembling influenza, followed by bleeding from the nose and mouth, petechiae on face, arms, and neck, and swollen gums. In this case the characteristic atrophy of the liver was found *post mortem*. In the other there was no evidence in the body of the lesions which are associated with hepatic insufficiency. Death resulted from a haemolytic aplastic anaemia, the amount of the blood-forming marrow having been greatly reduced.

Dermatitis.

Localized rashes, especially where there is pressure or friction, as from bands or ill-fitting clothes, are common. The parts most frequently affected are the hands, wrists, face (particularly round the eyes and chin), the neck, and the feet. On the hands the rash is most frequently of the cheiropompholyx type; sometimes it takes the form of discrete red patches on the backs of the hands and wrists, and on the face and neck usually as a superficial erythema attended with swelling. In whatever form it appears pruritus is intense. Fine desquamation usually follows. In a few cases the skin is exfoliated in large flakes. The character of the rash is frequently altered by a secondary infection through scratching.

Speaking generally, the skin affections due to T.N.T. are not of a severe character, and yield readily to the usual treatment for eczema. To allay the itching small doses of quinine have been found useful.

Differential Diagnosis.

So-called T.N.T. poisoning is apt to be confused with gastric disturbance set up by other causes. The history given by a patient is very often misleading. Many of the workers have no idea as to the nature of the substance upon which they are working, and refer to all explosive powders as T.N.T. The staining of the hands is very little guide, as this condition is met with from C.E. (tetryl or tetranitromethylanilin) and lyddite (picric acid or trinitrophenol).*

The following points are of importance for the diagnosis of T.N.T. poisoning:

1. The characteristic appearance as previously described.
2. The character and situation of the abdominal pain.
3. The presence of constipation and abdominal distension.

Post-mortem Examination.

The outstanding feature is the atrophy of the liver, which in acute cases is reduced to one-half the normal weight. The outer surface is smooth, reddish in colour, with slightly elevated gamboge-coloured areas of various sizes. On section in the red areas the tissue is smooth, flat, and firm; the normal lobular pattern is absent, the portal systems being set very close to one another; in the elevated yellow islands the tissue is bulged and soft; an indistinct lobulation is visible, the lobules being larger than normally. Ascites is sometimes present. The bile in the gall bladder may be unusually viscid. The kidneys on section are enlarged and icteric; the cortex bulges and the labyrinths are frequently conspicuously yellow. There is considerable engorgement of the pyramids.

The myocardium is pale, soft, and flabby. Petechial and diffuse haemorrhages are generally found beneath the endocardium, the pericardium, and the peritoneum. They have been observed on the skin, on the rib cartilages, and elsewhere in the body.

Microscopical Appearance of the Liver and Kidneys.

Microscopically a great part of the liver tissue is found to have undergone complete destruction associated with a proliferation of fibrous tissue. In these areas the necrosed hepatic cells have almost entirely disappeared. The areas of complete destruction correspond to the sunken red areas seen with the naked eye. Where the destruction is not complete the histological picture is almost identical with that of the early stages of ordinary portal fibrosis. The liver tissue is traversed by fibrous trabeculae enclosing areas of degenerate, partly destroyed parenchyma; in the healthier parenchyma slight regeneration may be present. These areas of incomplete destruction correspond to the raised gamboge coloured nodules seen with the naked eye. The kidneys show cloudy swelling and fatty degeneration in the tubules.

The jaundice is possibly the result of obstruction, because in sections of the raised areas the bile-dilated intercellular spaces have been found to be confined to the central portions of the lobules whilst the portal bile ducts have shown catarrhal degeneration and the portal ductules narrowing or obliteration of their lumina.

Predisposition.

Case incidence and proportion of deaths from toxic jaundice to attacks is little affected by sex. Thirty-three per cent. of recognized and notified cases have proved fatal. The fatality under 18 years of age is striking—eight deaths out of eleven reported attacked. Duration of employment before appearance of jaundice shows remarkable uniformity, at least 83 per cent. of the cases occurring between the fifth and the sixteenth week. In 105 reports on toxic jaundice not one had been employed for a period less than four weeks. Only two fatal cases have been reported where duration of employment had been more than four months, although thousands of workers have worked a much longer time. It would almost appear as though workers could be divided into two classes—the one (and much the larger) insusceptible and remaining so, however much exposed; the other susceptible and liable to succumb, especially between the fifth and fifteenth week. Although there has undoubtedly been some association between unfavourable industrial conditions and the occurrence of cases, fatal poisoning has sometimes occurred where exposure to dust and fumes at any rate appeared to be quite excluded, as, for example, in trolley work outside the building. In one remarkable case the fatal jaundice developed seven weeks after entire cessation from employment, the deceased having apparently been well during the interval. Long delay in onset of symptoms such as is shown in this case suggests that T.N.T. is gradually absorbed from some part of the body in which it is temporarily stored.

Channels of Absorption.

The problem of determining the chief path by which T.N.T. enters the body has been worked out in a T.N.T. factory. The T.N.T. test referred to was used in the belief that it afforded evidence of elimination after absorption, and as a sign, therefore, of the unavoidable effect of exposure merely rather than of poisoning. Probably T.N.T., after it enters, can be eliminated from the body

* The effects of tetryl and picric acid are both liable to be mistaken for T.N.T., and may, in consequence, lead to erroneous notification of toxic jaundice. Both stain the exposed skin—tetryl a yellow to an apricot colour, picric acid a canary yellow or greenish-yellow. They both set up an acute dermatitis, tetryl affecting chiefly the conjunctivae, the alae nasi, the sides of the neck, the chin, and, less frequently, the hands; and picric acid the hands and forearms chiefly, very much like T.N.T. Constitutional symptoms from both are slight in comparison with those from T.N.T. No case of toxic jaundice from either has so far been reported, although thousands of workers come in contact with them. Apart from the initial dermatitis (which few handling the substance escape), symptoms of gastritis and breathlessness with diffused heart pulsation have been noted from tetryl.

harmlessly in the combined form in which it occurs in the urine. Examining the urine of T.N.T. workers daily for a period of seven weeks, the conclusion come to was that where there is absorption from the skin in susceptible persons the test shows a deeper colour reaction than in absorption from the digestive tract, and this reaction is found to persist for days after removal from exposure. On the other hand, the urine reaction following on ingestion of T.N.T. disappears in less than twenty-four hours. Absorption through the mouth and by breathing is probably only of less importance because when once work is over these paths of entry are no longer exposed to T.N.T., and the amount absorbed, which is less than that gaining access to the skin, is eliminated before work recommences.

Preventive Measures.

In the manufacture and use of dinitrobenzene before the war, need for minimizing the effects was well recognized either by arranging for alternation of employment or by allowing the workers such time off as was necessary for their recovery. Experience had shown that long hours of continuous work were impracticable. Similarly in some large factories where the number of workers and the nature of the processes carried on has permitted of systematic alternation of work on T.N.T. with other work away from it, no cases of toxic jaundice have been reported. And in others where on occurrence of cases alternation has been arranged the number notified has fallen. Hence in considering remedial measures against the danger of T.N.T. in circumstances demanding the utmost output, the aim is, apart from removal of fumes and dust, to employ workers over 18 years of age, to make suitable canteen provision, so that workers can obtain good food on factory premises, to eliminate those showing early signs by frequent medical examination, and to alternate the work or reduce the length of the shift if practicable. Complete protection of the skin is very difficult of attainment, but investigation is being made as to whether this may not perhaps be overcome in another way by the use of solvents such as have been mentioned (benzol, xylol, etc.).

The prophylactic measures adopted, for example, in the Royal Arsenal are as follows:

1. Only persons in good health, and as far as practicable between the ages of 20 and 50, are employed on T.N.T.
2. All workers are inspected by a medical officer once a week.
3. Special clothing is provided, also veils, respirators, and gauntletted gloves.
4. Employment is alternated fortnightly.
5. Adequate ventilation in workshops is arranged for.
6. Mechanical devices are adopted for preventing dust and getting rid of fumes.
7. Workers are warned against sleeping in the clothing worn at the factory, and advised to have a complete change of clothing on reaching home.
8. Facilities are provided for obtaining suitable and sufficient food at proper intervals. Milk is supplied free on the arrival of the workers.
9. Washing of hands and face is insisted upon before meals, and before leaving the factory. Neutral soap and individual towels are provided.

Treatment.

Where jaundice is absent the treatment is simple and satisfactory. The following is the usual procedure adopted at the Royal Arsenal: Removal from contact—rest in bed for a day or two. Diet: Milk, milk puddings, fruit and green vegetables; demulcent drinks, such as barley water, the imperial drink, tea and coffee. For the persistent constipation vegetable laxatives and cascara sagrada are employed. A mixture containing sodium sulphate, potassium citrate, and sodium bicarbonate is given as a routine measure.

In the treatment of cases with jaundice absolute rest in bed from the first is essential; milk, at first in small quantities, slowly increasing the quantity given to four pints a day. The bowels must be kept loose, preferably by mist. alba repeatedly given to maintain its action if necessary.

In cases of jaundice the prognosis is always grave. Alkali-producing drugs, such as citrates and bicarbonates, are given to counteract the tendency to acid intoxication. Rectal and intravenous saline injections have a definite place in the treatment of severe cases.

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ADDENDUM ON A URINARY TEST FOR T.N.T. ILLNESS AND THE EARLY DIAGNOSIS OF CASES SUFFERING FROM T.N.T. ABSORPTION.

It has hitherto been a difficult matter to follow up T.N.T. after it has once entered into the system. The reason is that T.N.T., like many other toxic substances, becomes combined in the body in a reaction which changes it for the time being, and probably renders it less poisonous. Once it has passed into the system and been so dealt with, it is no longer taken up by its well-known solvents, and must be set free again before it can be recognized by chemical tests.

Thus, a sample of urine from a T.N.T. worker loaded up with the altered T.N.T. can be extracted with a T.N.T. solvent, and yet not a trace be discoverable in the extractive. If, however, the substance be first set free with acid, and then extracted with an appropriate solvent, the characteristic reactions of T.N.T. can be obtained from the solution in the extractive.

A considerable experience in testing many hundreds of urinary samples from T.N.T. operatives has led to the following precise way of carrying out the test.

Webster's Test for Presence of T.N.T. in Urine.

Measure out 12½ c.cm. of the urine in a measuring cylinder, then add 12½ c.cm. of diluted sulphuric acid, made up by mixing 20 c.cm. of strong sulphuric acid with 80 c.cm. of water. Pour the mixture of urine and acid into a separating funnel of 100 to 150 c.cm. capacity and provided with a stopcock; add to the mixture 10 c.cm. of ethylic ether (the ordinary ether made from methylated spirit is sufficiently pure for the purpose), shake up well and allow to settle; take out the cork or stopper from the top of the separating funnel, open the stopcock at the bottom and allow the mixture of acid and urine to run off, then turn the stopcock off so as to retain the ethereal solution in the separating funnel. Now add 25 c.cm. of tap water to the ethereal solution in the separating funnel and shake up again to remove the traces of the mixture of urine and acid and allow to settle again for two or three minutes, then run off the water by opening the stopcock, retaining the ether in the funnel. Finally, let the ethereal solution flow into an ordinary test-tube and try for the presence of T.N.T. in it as follows:

Prepare a solution of alcoholic potash by dissolving 4 to 5 grams of caustic potash in 100 c.cm. of methylated spirit or absolute alcohol. Where many tests are to be carried out this solution may be made by having a stock saturated solution of caustic potash, and adding, when a fresh quantity of the reagent is required, 10 c.cm. of this to 90 c.cm. of alcohol.

To the ethereal solution obtained as above described 5 c.cm. of this alcoholic solution of potash are added. When T.N.T. is present a purple coloration is at once developed, varying in intensity according to the amount of T.N.T. present, from the faintest trace to a deep purple. The colour changes rapidly from the purple to a brown colour, and it has been found that the best results as to intensity are obtained by judging rapidly after the colour is struck.

It is easy for each observer to develop, after a little experience in using the test daily, an arbitrary scale of intensity which will enable him to judge degrees and follow relative intensities in the urine, and thus the effect of measures such as cleansing of the patient's clothing and person and removal from contact with T.N.T.

In elaborating the test a scale represented by *trace*, *1*, *2*, *3*, *4*, and *intense* has been used. At present it is impossible to construct a better scale, as the colours of comparative solutions of known strength of T.N.T. vary so rapidly, and as the substance so isolated from the urine does not behave exactly like T.N T. Also, bodies present in the urine and reagents vary the intensity of colour and speed of fading out. However, in the manner described above a fairly good rough standard of intensity can be obtained serviceable for clinical work and experimental observation.

A little experience enables the observer to carry out the test quite rapidly, and a single test can be made when all is ready in four or five minutes. Where a large number of tests have to be made daily, the chief loss of time is occasioned by waiting for the layer of ether to separate at the top of the mixture. This can be obviated by employing a battery of about eight separating funnels and carrying on from one sample to another while the settlement takes place. The eight ethereal extracts after treatment as above described are run off into eight test tubes of equal diameter. Another eight test tubes have previously had marked off upon them roughly about 5 c.cm., and have been filled to this mark with the alcoholic potash, and this is now poured off from each of these latter test tubes into the ethereal extracts, and the results noted down. Working in this way, twenty to thirty tests may be made in an hour, and comparative results so obtained possess an enhanced value over separate tests until the observer has become well accustomed to making the test.

The test is not a difficult one to perform, and when efficiently carried out demonstrates in nearly all cases of T.N.T. workers the presence of T.N.T. passing through the system, but in very varying degree. Some show scarcely any absorption, others give an intense reaction.

Interpretation.

The judgement on the test and its applications clinically must not be made solely on the intensity of the test. There are many workers on T.N.T. whose urine will give the test intensely at night after working during the day, and before going back to the next shift of work the urine may be quite or almost clear. These are not the persons who are in any immediate danger. The real value of the test is twofold—first, in clinching a doubtful diagnosis on clinical symptoms (previous to the appearance of toxic jaundice), and secondly, in watching the clearance of T.N.T. from the system after isolation from T.N.T. and judging whether isolation and other precautionary measures have been effective.

When there is doubt as to the presence of the early diagnostic symptoms, then the test should be made, and if it gives a fairly high result, the patient should at once be taken off work on T.N.T. and the urinary test made if possible daily in the succeeding two or three days.

If the urine clears up within twenty-four hours, and clinical symptoms confirm this improvement, the case may be either one of the less harmful ones of absorption by swallowing, or not really a case of T.N.T. illness. If, on the other hand, the urinary reaction after removal from work and separation from soiled clothing persists for three or four days, it is almost certain that the case is one of the more serious ones of a susceptible skin, and such a person ought to be permanently removed from T.N.T. work.

In all cases of applying the test, but more particularly in the case of persons removed from work as suffering from T.N.T., care should be taken to judge between accidental contamination of the sample of urine by T.N.T. and T.N.T. which has actually passed through the body. Fortunately this distinction is easily made, because of the way in which the system binds up the T.N.T. Where contamination is suspected, and it is fairly frequent, it may at once be detected by omitting the acid in the above test, and extracting the urine with ether either undiluted or after dilution with an equal volume of water instead of the acid.

When a positive result is obtained without acid it may be set down to contamination from clothing, skin, or hair, in the act of passing the urine. The detection of this contamination is in itself valuable, as it shows that the patient has not carried out instructions, and while supposed to be free from contact with T.N.T. is still exposed to it.

Even in such a contaminated urine, the degree to which T.N.T. is continuing to be absorbed can still be accurately followed up. All that it is necessary to do is to shake up the urine, *without the addition of acid*, with ether as described above, when the test in this quantity of ether shows the degree of contamination. This unacidified urine is now free from T.N.T. *due to contamination*, and can next be utilized for carrying out the test to determine how much is passing through the system.

MOTOR NOTES FOR MEDICAL MEN.

By H. MASSAC BUIST.

Dr. Addison in Charge of Munitions.

The appointment of Dr. C. Addison to be Minister of Munitions, after he has served in that department from its inception as Parliamentary Secretary, will be particularly welcome news to the medical profession, which is not only honoured by the appointment, but is assured also of the fact that the new Minister will have a correct appreciation of the value of medical work in the scheme of national activity. This is the more important to the profession in that at present the building of motor cars is forbidden, as is the manufacture of spare parts for old ones, and of repair work save under special permit and circumstances. As was pointed out in these columns a fortnight ago, there are very sound reasons for a permit giving preference as to the order of executing repair work being not worth the paper on which it is printed, in that the vast majority of motor manufacturing firms are occupied night and day on Government work. Therefore they have not an hour to spare to commence any job under any class for which permits are issued. If this principle were to be applied indefinitely to motor car repair work for the medical profession it would mean, in effect, that probably almost every doctor would presently have a permit, but that permit would be valueless to enable him to get any work done, therefore his activities would perforce have to be reduced to proportions which in some circumstances would be small compared with what they might remain if he had the free use of his vehicle. The new Minister of Munitions will understand the vital necessity of medical service to the nation in this crisis, and will therefore assuredly see to it that permits for work to be done on doctors' cars are issued under such conditions as will more or less ensure that that work can be carried out. In other words, the permit system will no doubt be developed in whatever direction is found necessary as the result of experience.

Petrol Situation Unaltered by German Successes.

The capture of the Rumanian oilfields by the Germans is of value to the enemy, but it does not represent a loss of a material sort to ourselves, despite the fact that British capital is locked up in exploiting many of the fields. The motoring enterprise of the Allies, alike in and out of the war zones, will proceed as before, because the oilfields of the world are producing on an ever-increasing scale, and it matters little to us whence we fetch the oil or petrol, because it has to be brought here by sea. Of course, on economical grounds, we had far sooner buy it from our Allies than from neutrals. But throughout the period of the war we have been able to do without supplies from Rumania, which has accumulated vast stores—a million and a half tons—that are reported to have been destroyed before the enemy reached them. The value of the Rumanian oilfields to the enemy lies in the fact that they produce heavier grades of oils than the Galician oilfields, of which the enemy is also in possession. The value of these resources to Germany and Austria is inestimable; hence, as the victorious armies marched forward there came behind them engineers with all the necessary equipment for getting the oilfields working again in the minimum of time. That was the principle adopted in Galicia, and we may be sure the same system will be exploited in regard to Rumania. Hence the importance of routing the enemy out of that country at all costs before they are really got going. But as to the Allies being rendered short of oil or petrol in consequence of this development, the present German successes can exercise no effect whatever, since we have not, since the commencement of the campaign, been dependent upon Rumanian supplies.

British Medical Journal.

SATURDAY, DECEMBER 16TH, 1916.

FOOD AND DRINK.

MR. RUNCIMAN recently gave to the House of Commons the following details of materials used in the manufacture of beer in the year ending September 30th last: Malt (barley), 41,605,365 bushels; unmalted corn, 77,776 bushels; rice, rice-grits, flaked rice, maize grits, flaked maize, etc., 1,343,930 cwt.; sugar, including its equivalent of syrups, glucose, and saccharine, 2,399,936 cwt. Commenting upon this in a letter to the *Times* of December 2nd, "Agricola" stated that in the village where he lived "each villager keeps a pig or two, which provide the only meat the family will taste for many months in the year. Large numbers, too, are reared by farmers; but since, owing to the demand for barley for brewing, etc., the price has risen to 70s. per quarter, these pigs are being thrown on the market immature and unfit for food owing to the impossible price of feeding stuffs. Why prate of 'economy in food' or shortage when this appalling waste is allowed to continue?" Professor Waller, in the *Times* of December 4th, controverted Agricola's view that materials used in the manufacture of beer could be economically diverted to the rearing of pigs. "The food value," he said, "of beer (*plus* milk and meat per cattle food) is more than half that of the brewing materials used, whereas the food value of the pig meat is less than one-fifth of the same materials." And he argued that by following "Agricola's" advice we should incur "a total loss of 1.2 billion calories—60 per cent. of the original beer value—by the utilization of beer materials for pig keeping." He concluded that "the value of abstinence from beer (and spirits and champagne) under present conditions depends upon considerations other than those to which 'Agricola' appeals." The quantity of malt and grain used in distilleries was in the same period about two and a half million quarters, and of other substances, including molasses, nearly one million hundredweights.

Neither "Agricola" nor Professor Waller can be said to have gone to the root of the matter. In the case of the pig its flesh is the sole result of the barley fed; a large part of the calorie value of its food is spent on its life energy, and the economic advantage claimed by Professor Waller, in the case of beer, depends on the feeding of brewers' grain to cows which consume in addition grass and roots; they produce calves, give milk for many months, and finally become butcher's meat. But surely there is a fallacy in Professor Waller's argument. Barley grown and milled in the district and conveyed to the pig farmer, requires an expenditure of human energy which is very much less than that expended on barley in its conversion into malt, its transport to the brewery, brewing, and the transport and sale of the beer to consumers. A large amount of coal—of which there is a critical shortage—is used in making beer or its transport, a very large amount of mercantile tonnage is occupied by materials for beer which could be utilized for food. A large number of men are kept at the manufacture of beer who might be employed in the essential work of food production at home. Now all the vast sum of human energy spent on beer making and handling is made good out of food, and this expenditure must be taken into account in measuring the relative economic advantage of using barley for beer making or pig raising.

The consumer takes beer because he likes its taste and finds its effect on his feelings agreeable, and not as a food. It is conceded that alcohol does bodily harm to many, and therefore causes an expenditure of energy in their treatment when ill, and that it occasions crime entailing a wastage of human energy in its prevention and punishment. Over-indulgence diminishes working efficiency to such an extent that the Government has had to institute a Board of Control to counter the liquor trade and secure a more adequate output of munitions.

It must be recognized that the waste of calories is enormous in turning grain foods into beef or pork; there is no such waste in using the grass of the pampas, or such grazing land in this country as is unsuitable for the cultivation of grain or vegetables. If the war brings us down to bed-rock diet it will be a diet of standard or wholemeal bread, oatmeal porridge, barley cakes, potatoes and vegetables, such nut-butter and fish as is available, and just so much animal food as can be raised or imported after the national stomach has been satisfied with grain foods and potatoes. The whole calorie worth of the grain food is utilized when man eats it, and therefore its use for brewing beer and feeding cattle and pigs must, as the war continues, be progressively limited.

In the matter of sugar shortage, it should be borne in mind that sugar exists in natural foods only in small amounts; its physiological function in such foods is to act as an appetizer. Starch is the natural carbohydrate food, a colloid which is only converted by the digestive juices into sugar in proportion as it is absorbed. The concentration of sugar from foodstuffs, and its consumption in the pure form as sweetmeats, is wholly artificial, and a quite recent incident in the history of man. There is no doubt that sugar is responsible for a great deal of gluttony and ill health. The abstainer from alcohol may do himself no less harm by his gluttony for sweets and sweet pastries than the drinker does by over-indulgence in alcohol. Not uncommonly he does. The restriction of sugar will do the nation no harm so long as the sugar is reserved for flavouring and making appetizing the natural foods, and not used for the manufacture of sweets and heavily sweetened confectionery. It is only the soldier at the front and the children of the poor who need sweetmeats.

Having in mind the present shortage of meat, one cannot regard with favour the conversion of a part of the world's supply into beef extracts, which hitherto have escaped the attention of the Chancellor of the Exchequer, while all other drinks are heavily taxed. A popular advertisement represents a prime sirloin of beef as going to make a small bottle of extract. We know that the meat extracts contain salts and extractives—appetizers—but that the proportion of protein present when a cup is made is so small as to be negligible as an element in diet. No doubt the protein after the extraction is utilized for making poultry meal, dog biscuits, etc., but the waste of good food remains. The extracts are a luxury, and comparable in that respect to wine.

THE FEES OF PHYSICIANS AND SURGEONS.

DURING the last five weeks the columns of the BRITISH MEDICAL JOURNAL have presented to their readers a discussion of increasing animation upon a topic of perennial interest, and that is the proportion that should obtain between the fees paid to the physician and the operating surgeon respectively. The letters received from our correspondents illustrate the many points of view from which this question may be regarded; they do not, alas!—and, indeed, how could they?—offer any single solution of its difficulties. Discussion as to whether the surgeon or the physician represents the higher branch of the medical profession, using the term in its widest sense, has proved itself once more to be sterile, and calculated to produce annoyance rather than agreement between those taking part in it. Circumstances alter cases, and cases, like the patients who illustrate them and the physicians and surgeons who treat them, vary so widely as to be beyond the scope of any summary generalization. Every practitioner of medicine will be able to call to mind instances in which the fees paid to either physicians or operators have been disproportionate to the merits of their recipients.

The letters received from our correspondents indicate a general tendency to believe that while surgeons commonly receive the full market value in payment for the great services they render to their patients, physicians are by no means always so fortunate. Yet none of our correspondents has succeeded in putting forward a practical scheme for the redress of this inequality, unless it be by improving the education of the fee-paying public. The triumphs of surgery are often solid and sometimes spectacular. Nothing could be less spectacular than the triumphs of medical science, for they are in general negative in the sense that they so often deal in prevention rather than immediate and obvious cure. The result is that so long as seeing is believing—the layman's inevitable criterion—so long will the operating surgeon continue to command his present well-deserved fees, and so long will the physician frequently receive less than he in fact deserves.

The far-reaching suggestion that every surgeon should be his own physician and every physician his own surgeon, excellent in the few instances in which it can actually be realized, will hardly be regarded as an immediate solution to the problem before us, but it may perhaps indicate the lines along which the solution required will in the future be sought. To combine successfully all the qualities of a first-class physician with all those of his surgical compeer must always be beyond the reach of any but the very exceptionally gifted. Hence the necessity for specialism. It is without doubt unfortunate that the practices of surgery and of inner medicine should, as Sir Clifford Allbutt reminds us in his highly interesting account of this dichotomy in to-day's issue, have been so widely divorced ever since the twelfth or thirteenth century. In this letter he goes to the root of the matter by asking us how long we are to go on with a routine which is blind and foolish, and must therefore create false positions. Specialism he recognizes is inevitable, and his plea that it should follow natural lines and be regulated by personal inclination rather than precedent is one which may serve to take the energies of our correspondents into a field to be tilled with more profit. Should it be possible to make the provinces of medicine and surgery overlap more widely than they do, something will have been done not only to equalize the fees paid to the exponents of these two branches of the medical profession, but also to help on the progress of medical science as a whole. The hands have always been most important among the teachers of human beings; surgery owes a vast amount to the fact that it is in the best sense of the word a handicraft, and the physician who has the good chance to be able to import the element of handiwork into his professional activities will surely gain in knowledge and skill thereby.

MEDICAL CERTIFICATES.

THE article on the responsibility involved in giving a medical certificate has, we are glad to find, attracted some at least of the attention the importance of the matter deserves. The article had special reference to the giving of a medical certificate which might be used before a tribunal to support a claim for exemption on the ground of physical unfitness, and it was founded upon observations contained in the address delivered by the President of the General Medical Council at the opening of its winter session. He once more called attention to "the imperative duty of every practitioner to safeguard the trust confided to him by the law, to treat the certificates he issues as declarations made on honour and conscience, and to ensure that the evidence it purports to afford is not just defensible merely, but above suspicion of carelessness either in its contents or in the manner of its attestation by his signature." He went on to utter the warning that the Penal Cases Committee of the Council would not hesitate to advise a judicial investigation by the Council in any case where it was credibly alleged that a practitioner's certificates or notifications were, in the words of the Warning Notice issued by the Council some time ago, "untrue, misleading, or improper." He in fact went rather further, for, after mentioning that communications had been received from several important Government departments making it clear that in some parts of the country an impression existed among public authorities that some medical men had relaxed their usual vigilance in the matter of certificates, he stated that if any specific charge against a practitioner, supported by prima facie evidence, of culpable laxity had been brought to notice, the Council would, during the last session, have dealt with the charge, "under a full sense of its gravity, in the interest alike of the State and of the good name of the medical profession." He added that an intimation to this effect had been made to the Government departments concerned, and that meanwhile the Council would await their further action.

In commenting on this we said that the Council can be no respecter of persons, and that "if the scandal comes it must deal out even-handed justice alike to the struggling practitioner in a poor area and to the consultant or specialist in a fashionable street." In making this comment we meant no more and no less than the words in their natural meaning convey, and we do not accept the gloss put upon them by one of our correspondents this week, who speaks of the extension of the warning "to the consultant in Harley Street" as parading "a delusive fairness." We adhere to the words used, and repeat that the warning applies to every member of the profession whatever the class of practice in which he is engaged; the amount of the fee, or whether any fee be paid, has nothing to do with it.

It is alleged by some of our correspondents that the immense increase in the number of certificates and notifications required directly or indirectly by the State has somewhat dulled the edge of carefulness. It is true that legislators and the makers of the orders and regulations in which nowadays so many Acts of Parliament are bodied forth seem frequently to forget that weariness of much labour and much certificate-giving may easily conduce to the relaxation of vigilance spoken of by the President of the General Medical Council. But the responsibility attaching to the grant of a medical certificate is at all t mes serious, and in respect of certificates for military purposes is more than ever serious now. Prevention is better than punishment, and we agree with Dr. Murray Leslie who last week expressed the view that the pressure brought to bear upon practitioners by applicants who desire to avoid military service, would be diminished if a form of certificate were provided for the medical practitioner to fill up. We also agree with him that the necessity of filling up such a form would encourage the exercise of greater care, since the practitioner's attention would be thoroughly aroused and his sense of responsibility quickened. We understand that the matter has already been before the Central Medical War Committee and that the draft of a certificate in a form most suitable for the purpose in view is under consideration.

DOCTORS AS MEN OF ACTION.

THE new Ministry contains two doctors. The new Lord Chancellor, Sir Robert Finlay, took the degree of M.D. at Edinburgh, but we do not know whether he ever practised medicine. Dr. Addison, whom we congratulate on his well-earned appointment to be Minister of Munitions, before he took to a political life was a distinguished professor of anatomy. He makes an important addition to the lists recently given in the JOURNAL of doctors who have been more or less prominent as men of action. We take this opportunity of repairing some omissions in those lists. Dr. Robert Farquharson was for many years a familiar figure in the House of Commons; he was a member of the Selection Committee, and rendered excellent service in the promotion of much useful legislation, notably in regard to the reform of the medical service of the army. Sir Charles Cameron has done much for the legislative enforcement of temperance, for the abolition of imprisonment for debt in Scotland, and other social reforms. Mr. John Dillon, who has long played a prominent part in Irish politics, is a member of the Royal College of Surgeons of Ireland. The late Mr. Mitchell Henry, who was for some time surgeon to the Middlesex Hospital, exchanged his original profession for politics and was for some years an active member of Parliament as representative of co. Galway and afterwards for the Blacktriars Division of Glasgow, ending as an agricultural reformer in Ireland. Sir Michael Foster was recognized as the representative of medical science in the House of Commons, and Sir William Priestley won for himself and his profession the esteem of that critical assembly. Going further back, we find among medical M.P.s, Dr. Thomas Lake, who sat for the Port of Hastings in 1572, 1585, and 1586; Dr. John Bathurst, who was physician to Oliver Cromwell, and sat in the Protector's Parliament for Richmond, Yorkshire, in 1656, and in that of Richard Cromwell in 1658; Dr. Jonathan Goddard, who accompanied Cromwell to Ireland as first physician to the army in 1649 and to Scotland in 1650, and sat as representative of Oxford in the Little Parliament in 1653; Sir William Petty, author of *Political Arithmetic*, a pioneer of political economy and founder of the Lansdowne family, who sat for West Looe in Cornwall in 1658; Dr. Thomas Arris, son of the co-founder of the Arris and Gale Lectures at the Royal College of Surgeons, who represented St. Albans in 1661; Sir John Finch, who was Charles II's Minister at the Court of Tuscany in 1665, and his ambassador at Constantinople in 1672; Sir John Hinton, physician to the same King, in whose service he contracted several thousands of pounds of debt; Dr. Nicholas Barbon, originator of fire insurance companies, who represented Bramber and died in 1698; and the famous John Radcliffe, who represented Buckingham in 1713. Dr. John Freind, a very active politician who was imprisoned in the Tower for alleged participation in the "bishops' plot," and was liberated by the good offices of Richard Mead, who refused to prescribe for Sir Robert Walpole till his friend was set free, sat for Launceston in 1722; in 1725 he presented to the House of Lords a petition from the College of Physicians against the "growing and pernicious use of spirituous liquors amongst persons of all ranks and both sexes." Dr. Charles Cotes sat for Tamworth in 1734 and 1741; Dr. Thomas Dimsdale, who inoculated Catherine of Russia against small-pox, and was created a Baron of the Russian Empire with a fee of £12,000 and a pension of £500 a year, was M.P. for the borough of Hertford. All these were Fellows of the Royal College of Physicians of London; doubtless other members of the medical profession besides Joseph Hume and Thomas Henry Wakley, mentioned in a former article, have played a part on the political stage, but neither memory nor such hasty research as we have been able to make has brought up any additional names from the past. Among the doctors who are rightly counted among *auctores imperii* we should not forget Gabriel Boughton, who in 1645 or thereabouts obtained for the East India Company the concession from the Great Mogul which laid the foundation of our empire in the East; William Hamilton, whose successful treatment of a later Emperor had important results in promoting British interests in India; and John Zephaniah Holwell, the defender of Calcutta in 1756, who took command among the prisoners in the Black Hole, and was afterwards temporary Governor of India in succession to Clive. Short accounts of these men may be found in the JOURNAL of May 25th, 1907. Among doctors who have played a political part behind the scenes may be mentioned Sir Alexander Fraizer, physician to Charles II, in whose political sagacity the King is said to have placed as much reliance as in his professional skill; Sir William Knighton, physician to the Prince Regent, afterwards his private secretary and keeper of the privy purse; Baron Stockmar, the trusted counsellor of Queen Victoria and Prince Albert; Dr. Robert Ferguson, physician to Lord Palmerston, who found him a convenient medium for gathering political information and for unofficial negotiation, and Dr. Quin, who was used by Lord Beaconsfield for the same purpose. Turning to France, we find M. de Lanessan, a former Minister of Marine; Professor Cornil, a member of the Senate, to whom is mainly due the law regulating the practice of medicine passed in 1892; M. Viger, who was Minister of Agriculture in several successive Cabinets; and Dr. Fernand Dubief, who died the other day, author, among other legislative measures, of a special tariff of medical fees for accidents to workmen. In France doctors take a larger share in the government of the nation than in any other country.

BRITISH ANATOMY.

AFTER the failure of the *Natural History Review* in 1865 British anatomists and physiologists felt the need of a means of publishing a record of their observations and discoveries. In the following year, 1866, Turner of Edinburgh and Humphry of Cambridge met at Nottingham to arrange the business of the Physiology Section of the British Association. On the initiative of Turner, steps were taken there and then to found a *Journal of Anatomy*

and Physiology, Humphry undertaking the active editorship. Under these two men the journal prospered and became the organ of English-speaking anatomists. It was less successful as a medium for physiologists. In 1878 the *Journal of Physiology* was founded, and from that date onwards physiological papers became fewer and fewer in number in the pages of the *Journal of Anatomy and Physiology*. At the end of last century the American anatomists, who in earlier years had used the British journal, founded one of their own—a very successful and valuable venture, which in size outstrips its British predecessor and certainly rivals it in quality. The *Journal of Anatomy and Physiology* has always been, and still remains, the medium by which British anatomists publish their researches. In recent years it has been managed and edited by Professor Alex. Macalister of Cambridge, who had as his associates on the editorial staff, Professor Arthur Thomson of Oxford University, Professor Arthur Robinson of Edinburgh University, and Professor Arthur Keith of the Royal College of Surgeons of England. Recently Professor Macalister, with the consent of his colleagues, transferred the management and editing of the journal to the Anatomical Society of Great Britain and Ireland. The society has tendered Professor Macalister its grateful thanks through its president, Professor R. Howden. An editorial committee has been appointed by the society to manage and edit the journal. On the committee are Professor T. H. Bryce of Glasgow University, Professor E. Fawcett of Bristol University, Professor J. P. Hill of University College, London, Professor G. Elliot Smith of Manchester University, and Professor A. Keith of the Royal College of Surgeons of England. Professor Keith is to serve as acting editor. The title has been changed to *Journal of Anatomy*, physiologists being amply supplied with means of publication. The *Journal of Anatomy*, although now owned and managed by the Anatomical Society, is open to papers dealing with all branches of anatomy—human, comparative, microscopic, and embryological—whether or not such papers have been read as communications to the society. At the last meeting of the society, Colonel David Hepburn, University College, Cardiff, was elected President in succession to Professor Howden.

THE HEALTH OF TURKEY.

SPEAKING at a meeting of military surgeons at Metz, Dr. Auerbach,[1] who appears to have spent several years in Asiatic Turkey, reviewed the conditions of medical practice in Turkey and the prevalence of certain diseases. In Syria medical practitioners belong to two sharply defined schools, the European and the native. The native physician, who had been taught in Constantinople, was far better educated than the pupils of the Beirut High Schools, where instruction in anatomy, pathology, and midwifery was faulty for want of material. *Esprit de corps* in the medical profession was practically unknown, and though the chemists were, as a rule, well equipped, they were not always reliable, and were, Dr. Auerbach said, invariably tied financially to some physician. The hospitals were almost entirely in the hands of the missionaries. No public health medical service existed. Malaria, chiefly tertian, was the most prevalent disease, but severe forms were rare. Treatment was, as a rule, inadequate. In Jerusalem almost all the inhabitants were affected, and among 8,000 school children examined before the outbreak of war, 25 per cent. were found to be infected at the first examination of the blood. Trachoma was so prevalent that 33 per cent. of the population were infected. In the autumn, dysentery, usually amoebic, was common; it reacted very satisfactorily to gluteal injections of emetine. Typhoid fever, though not rare, ran a milder course than in Europe; it was often confused with Malta fever. Cases of cholera, usually introduced by pilgrims returning from Mecca, were observed almost every year. Epidemics of small-pox occurred every year, and vaccination was not universal. The vaccination was made on the skin between the thumb and index finger. Pulmonary tuberculosis was rare, and was usually introduced from without. Among the natives it was almost unknown, but when they did develop pulmonary tuberculosis it was rapidly fatal, even in cases which at first seemed slight. The miliary form of pulmonary tuberculosis was more common among the natives than the ulcerating, cavity-forming type of the disease. Tuberculosis of the bones was relatively more frequent, and reacted satisfactorily to sunlight. Gonorrhoea and syphilis were far less common than in Europe, probably because of early marriage in the East. During five years Dr. Auerbach had never seen a case of tabes or general paralysis among the natives. Cancer, notably cancer of the uterus, was rare, but displacements of the uterus were common, no doubt on account of frequent confinements. Fecundity among the native women was counteracted by the enormous infant mortality; only about four out of ten children reached maturity. Polygamy was most exceptional. It was not surprising that by the age of 30 the women had become faded, for they had had, on the average, ten to twelve confinements.

[1] *Deut. med. Woch.*, August 10th, 1916.

COMBING OUT THE PSEUDO-TUBERCULOUS.

IN their dire need of men for military service the Germans are, by their own admission, enrolling for active, as well as for garrison, service phthisical patients suffering from the so-called "closed" form of pulmonary tuberculosis. Surely only the most desperate straits can justify this action, not merely from the point of view of the patient, whose "closed" tuberculosis may become "open" at any time, but also from that of his fellow-soldiers and of the military medical service, upon whom the burden of the broken-down soldier necessarily falls. Combing out the healthy from among a large class of cases suspected of being tuberculous is quite another matter, and a scheme the Germans have adopted with this object in view deserves notice. Observation hospitals are staffed only by medical specialists and are equipped with every modern contrivance for diagnosis, principal among which are the *x* rays. How effective such an observation hospital may be has been shown by the late Professor Albert Fraenkel,[1] who found that only 40 per cent. of the cases were really tuberculous, while 40 per cent. suffered from other diseases, and the remaining 20 per cent. were healthy. Of 1,800 soldiers admitted to hospital as tuberculous, 43 per cent. were discharged as fit for active service and 15 per cent. as fit for garrison service. He came to the conclusion that previous residence in a sanatorium was not by any means reliable proof that the man had ever suffered from tuberculosis. In fact, he had recently satisfied himself that fifty men who had been treated in sanatoriums had never suffered from tuberculosis. He had little good to say of tuberculin as a diagnostic agent. Out of 700 cases, it indicated tuberculosis in 280, but only in 8 was the tuberculin reaction of any real diagnostic value, and in all the other cases it merely confirmed the evidence of the *x* rays and the clinical examination. Only in one case was the tuberculin reaction of crucial diagnostic value. The *x* rays were indispensable—both fluorescent screen and skiagram. The latter was, in fact, of almost as great value in the diagnosis of "closed" tuberculosis as the bacteriological examination of the sputum was for the "open" form. In the estimation of the fitness for military service of men suffering from the "closed" form, much importance was attached to the rate at which the temperature fell after exercise; a high exercise temperature, which fell rapidly, might be perfectly

[1] *Muench. med. Woch.*, August 1st, 1916.

normal. Before the war the Germans prided themselves on having reduced the incidence of tuberculosis in the army to 1 or 2 per 1,000; now they are priding themselves on the great number of tuberculous patients they are putting on garrison duty, and even on active service. To us this state of affairs seems tragic; but the thorough way in which the Germans have set about combing out the pseudo tuberculous contingent is worth the close attention of our own authorities.

A CASE OF CHORDOMA.

A CHORDOMA is a very rare form of neoplasm, originating from the remains of the notochord or chorda dorsalis that represents, embryologists tell us, the first axial skeleton or backbone. The bodies of the vertebrae and the base of the skull are developed from the notochord; itself, it disappears during fetal life, leaving behind only small pulpy masses in the intervertebral discs. Its upper limit is the juncture of the sphenoid and occipital bones. In a series of reprints[1] published by the University of Iowa, Professor Albert, the editor, gives an account of a case of chordoma coming under his own observation. The patient, a man of 26, was in a railway smash in February, 1913, receiving bruises about the head, right leg, and coccyx, and breaking a collar-bone. The coccygeal pain continued till May, when pain on defaecation and melaena were noted. A tumour was found projecting forwards from the coccyx, but not adherent to it, obstructing the lumen of the rectum. It was removed by operation, and on microscopical examination was found to be a chordoma. Four months later the pain, melaena with discharge of pus, and difficulty of defaecation all became worse. A nodulated annular mass surrounding and constricting the rectum was found, and a piece of it on removal and examination proved to be a chordoma. A modified Kraske's operation was performed, and three inches of the portion of the rectum involved by the tumour were removed. Before long signs and symptoms of recurrence of the growth appeared; a colotomy was performed in March, 1914, but the patient died in the following July. Professor Albert has been able to find only fifteen other cases of chordoma recorded in the literature. The growth was malignant in ten and apparently innocent in six instances. It occurred in the region of the spheno-occipital synchondrosis in ten cases, in the sacro-coccygeal region in the remaining six. The original tumour itself in Professor Albert's case was two inches long, an inch and a half wide, and an inch thick; it was soft, light in colour, and not connected with the coccyx or sacrum. Under the microscope it showed groups or columns of large vacuolated degenerating cells, separated by homogeneous interstitial substance or bands of fibrous connective tissue. The interstitial substance presented the staining reactions of mucin or mucoid substance.

GERMAN RAVISHERS AND THEIR VICTIMS.

IN a thesis for the doctor's degree recently presented to the Paris Faculty of Medicine, M. René Dubois[2] reported ten cases of French and Belgian women who became pregnant after violation by German soldiers. He admits that, in the circumstances, a rigorous scientific control of the patients' narratives was not possible, but the stories, which were usually very concise, never varied; they did not care to dwell on their experiences, and there was no trace of romancing or of any kind of embroidery. They all had an aspect of deep distress; their restless and frightened look was that of creatures overwhelmed by fate. Professor Pinard, to whom the observations were submitted, thought them worthy of publication. It is impossible to give particulars of all the cases; they are too unpleasant for repetition. A few illustrative instances will suffice. In one case a farm servant in Belgium, aged 18, left her place when the approach of the Germans was announced on August 22nd, and with another girl set off for a neighbouring village. They found it in the hands of Germans, who seized them, crying that they must be their servants and their wives. They were mingled with other captives in an empty house, and when the Germans had inflamed themselves with drink, the girls were, under threats of death, compelled to submit to the ravishers. The girl who is the subject of the report was first the victim of an officer, who then immediately handed her over to a comrade. For three days she was forced to sate the lust of her two masters. On the evening of the third day she managed to escape and found her way to Paris, where she was delivered of a girl in the course of the ninth month after violation. In another case a married woman, aged 28, was captured by Germans with some hundred and fifty other women; each was placed in a pigsty on a bundle of straw. They became the prey of hussars. Those who made any resistance were tied hand and foot, and were "brought to their senses" by blows with the butt end of the rifle or kicks. From December 1st to January 11th the unhappy woman had every day to endure the embraces of eight soldiers. On October 3rd, 1915, she was delivered of a girl. In a third case a married woman, Madame K——, aged 22, belonging to a village in French Lorraine, was with fifty young girls locked up in a barn in March, 1915. They were stripped of their clothing and given over to fifty soldiers. The women who refused had their bellies ripped open; only thirty came out of the barn alive. Madame K—— was delivered of a girl in the following December. Full obstetrical details of all the cases are given. The children—six girls, four boys—were with two exceptions of normal weight. In only one case was the confinement premature. In two cases there was an appreciable prolongation of the period of gestation—in one to 292, in another to 293 days; both the mothers were multiparae and their menstrual history was regular. While some of the mothers submitted without reluctance to their babes being taken from them, others parted with them very unwillingly. In nearly all the instinct of motherhood was awakened by the first cry of the child. Only a few refused to suckle or even see the child.

THE NEW MINISTRY.

THE most remarkable feature of Mr. Lloyd George's Ministry, and that in which it departs most from precedent—apart from the smallness of the Cabinet, which has been reduced to five—is the disposition to put experts at the head of departments where expert knowledge is necessary. Hitherto, except in law appointments, this practice has not been followed. The most conspicuous example of the new departure is the nomination of the Vice-Chancellor of the University of Sheffield to be President of the Board of Education, for with the science and administration of education the whole of his career has been concerned. Other examples are Sir Albert Stanley at the Board of Trade, Mr. Hodge at the Ministry of Labour, Mr. Prothero at the Board of Agriculture, Lord Devonport as Food Controller, and Sir Joseph Maclay as Shipping Controller. An exception is afforded by Lord Rhondda, a very eminent financier and a great coalowner, who becomes President of the Local Government Board which, after the Insurance Commission, is the department of the Government that has most to do with medical questions. As a set-off we have Dr. Addison at the Ministry of Munitions, a post for which his scientific training and recent special experience particularly qualify him.

[1] *University of Iowa Monographs: Studies in Medicine.* Vol. I. No. I. June, 1916. Edited by H. Albert, M.D. Published by the University. (Med. 8vo, pp. 94.)

[2] Dix observations obstétricales du temps de guerre: Thèse de Paris. 1916.

THE WAR.

NOTES FROM GERMAN AND AUSTRIAN MEDICAL JOURNALS.

TRAUMATIC EXOPHTHALMIC GOITRE.

SEVERAL papers have been published in the German medical press dealing with the relation of tachycardia and other symptoms to hyperthyroidism, and the sudden onset of exophthalmic goitre in the subjects of hyperthyroidism has also been discussed. One case described by Dr. Schutzinger[1] was that of a waiter, aged 20, who had been weakly as a boy, but had never been seriously ill. He went on active service in May, 1915, and became so excited by prolonged artillery engagements that he often did not know what he was doing. Towards the end of June he noticed his neck was enlarged, and he was troubled by palpitation of the heart, vomiting, and attacks of violent trembling. He became much worse during the battles in September, and when, on October 1st, he was badly shaken by the explosion of a shell, and slightly wounded in one foot, he was sent to hospital, mainly on account of his nervous condition. First he was dieted, and later he was treated with thymus tablets, which in a short time reduced the circumference of his neck. In November he still suffered from nervous restlessness and palpitation of the heart. The pulse was 100, there was considerable tremor of the hands, as well as extreme exophthalmos. Under treatment with thyreoidin tablets and the Roentgen rays the symptoms gradually improved, the tremor in particular diminishing, and finally ceasing.

TETANUS AND ANTITETANUS SERUM.

After recounting his experience of tetanus and of the effects of antitetanus serum in a large number of cases, Professor Kümmell[2] arrives at the following conclusions: (1) The picture of tetanus produced by the severity and the number of cases shortly after the outbreak of the war has disappeared. (2) Early prophylactic injection of the wounded with antitetanus serum is an almost certain preventive of tetanus. (3) An injection should be repeated when, about seven days after the first injection, an operation, even though it be slight, has to be undertaken. Prophylactic injections are also indicated when ever a patient who has recovered from tetanus has to undergo an operation. (4) The relatively low proportion of failures could be further reduced by improvements in the preparation of the serum, by avoidance of errors of administration, and by greater knowledge of the treatment of suspicious wounds. (5) Only in a very small proportion of cases is tetanus unavoidable; this happens only when the blood has been flooded by much virulent toxin, or the patient is exceptionally susceptible to tetanus.

GAS GANGRENE.

Professor Bier,[3] while accepting the general view that gas gangrene is exclusively a disease of the muscles, agreed also that the bacilli might migrate to the intermuscular spaces and subcutaneous tissues. In the true focus of infection, the muscle substance changes could be observed ranging from simple pale-red discoloration to complete reduction of the muscle to pulp. Tissues other than muscles were much affected by the disease only when extensive areas of a limb were involved. If a necropsy were performed immediately after death the distribution of the gas gangrene was strictly limited; its apparent generalization was mainly a *post-mortem* change. Bacteriological investigations carried out by Professor Pfeiffer confirmed these views; in the oedematous and emphysematous subcutaneous tissues at a little distance from the track of the wound, either he could not find the bacillus, or it was demonstrable only by cultivation. Bier argued that the rarity with which the brain was affected supported the view that gas gangrene was a disease of the muscles only, and he denied the occurrence of gas gangrene of the lungs He avoided operations in almost every case, for he believed that the general opinion that gas gangrene was usually a most virulent disease was founded on the most severe forms and the results of their operative treatment.

[1] *Munch. med. Woch.*
[2] *Berl. klin. Woch.*
[3] *Med. Klin.*

CASUALTIES IN THE MEDICAL SERVICES.

ARMY.

Died on Service.

Lieutenant John Cropper, R.A.M.C. (temporary).

Wounded.

Captain W. H. Payne, R.A.M.C. (temporary).
Captain P. Smith, M.C., R.A.M.C. (temporary).

DEATHS AMONG SONS OF MEDICAL MEN.

Barker, W. Gordon, Captain Connaught Rangers, only surviving son of the late Colonel Arthur Barker, A.M.S., of Harley Street, died on December 2nd at Nordrach-on-Dee, after a long illness following on ten months' confinement in Germany as a wounded prisoner of war, aged 30. He was born in 1886, entered the army in August, 1906, became lieutenant on February 27th, 1909, and captain in December, 1914. He served in the first operations on the western front, and was reported missing at the end of August, 1914, and soon afterwards as wounded and a prisoner. He was repatriated in June, 1915.

Dymoke, Walter George, Second Lieutenant, son of Dr. F. Dymoke of Bristol, died on October 3rd of wounds received on October 1st. He was educated at Epsom College, which he left in 1911, and at Bristol University, where he was a student of medicine and in the O.T.C. He spent the summer of 1913 farming in Canada. He got his commission in 1915, and had only been at the front for six weeks when he received his fatal wounds.

Morse, Reginald Stuart, Cadet University of London O.T.C., son of Dr. Morse, died after a long illness at Chalfont St. Peter on December 6th, aged 18.

Mugliston, Thomas Daly, Australian Infantry, second son of the late Dr. H. Boyes Mugliston of Sydney, died on service on December 2nd.

HONOURS.

A SPECIAL supplement to the *London Gazette*, issued on December 11th, contains a further list of awards in recognition of gallantry and devotion to duty in the field. The list contains the names of the following fourteen medical officers, one of whom receives the D.S.O., one a bar to the Military Cross, and twelve the Military Cross.

D.S.O.

Major Philip Burnett, Canadian A.M.C.
For conspicuous gallantry and devotion to duty. He took over the command of the bearers at the front, and for forty-eight hours carried out his duties with great skill and determination under very heavy fire.

Military Cross.

Temporary Captain Mark Blakiston Baines, M.D., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended the wounded under very heavy fire, displaying great courage and determination. He rescued several men who were buried. He has on many previous occasions done fine work.

Captain Frederick William Brunker, R.A.M.C.
For conspicuous gallantry in action. He continuously went into the open under very heavy fire and attended to the wounded. He displayed great courage and determination throughout.

Temporary Captain Arthur Barrett Cardew, M.B., F.R.C.S., R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended the wounded under heavy fire throughout the action, displaying great courage and determination.

Temporary Captain Ralph Annesley Fuller, R.A.M.C.
For conspicuous gallantry and devotion to duty. He led stretcher parties and tended the wounded under intense fire. He displayed great courage and determination throughout the operations.

Temporary Captain Allen Coulter Hancock, R.A.M.C.
For conspicuous gallantry and devotion to duty. He led a rescue party in the open under heavy fire, and rescued twenty-eight wounded men. He displayed great courage and determination throughout the operations

Temporary Captain Robert Welton Hogg, M.B., R.A.M.C.
For conspicuous gallantry and devotion to duty. With a party of stretcher-bearers he searched the forward area under very heavy fire, and brought in many wounded. He has previously done fine work.

Temporary Captain Edmund Basil Jardine, R.A.M.C.
For conspicuous gallantry and devotion to duty. He tended the wounded continuously for three days and nights under heavy fire, displaying great courage and determination. He has done fine work throughout the campaign.

Temporary Captain James La Fayette Lauder, D.S.O., R.A.M.C.
For conspicuous gallantry and devotion to duty. He repeatedly with different parties of stretcher bearers searched the forward area under intense fire and brought in many wounded men. He has previously done fine work.

Captain Robert Gerald McElney, R.A.M.C.

For conspicuous gallantry and devotion to duty. He led stretcher parties and worked in the open under heavy fire continuously for thirty-four hours. He set a splendid example of courage and determination.

Temporary Captain Wilfred McFarlane, M.B., R.A.M.C.

For conspicuous gallantry and devotion to duty. He led a stretcher party across "No Man's Land," and attended to the wounded. He worked unceasingly throughout the operations under heavy fire and set a splendid example.

Captain Norman Henry Prior, New Zealand Medical Corps.

For conspicuous gallantry and devotion to duty. He went over the parapet and dressed a wounded man under intense fire. Later he worked continuously among the wounded under fire, displaying great courage and determination.

Temporary Captain Henry Strawson Turner, R.A.M.C.

For conspicuous gallantry and devotion to duty. He led stretcher parties and tended the wounded under intense fire. On one occasion he rescued eight wounded men in the open.

Bar to Military Cross.

Temporary Captain James Henry Fletcher, M.C., R.A.M.C.

For conspicuous gallantry and devotion to duty. He led parties of stretcher-bearers in the open under heavy fire. He displayed great courage and determination throughout the operations. (The Military Cross was awarded in *London Gazette*, dated January 4th, 1916.)

SALONICA DISPATCH.

The following additional names of medical officers should have been included among those printed last week as being mentioned in the dispatch of Lieutenant-General G. F. Milne, C.B.:

Lieutenant-Colonel J. R. Whait.
Captains (temporary Lieutenant-Colonels) H. G. G. Mackenzie, G. T. Willan.
Captain (temporary Major) T. H. Peyton.
Captains R. E. Bickerton, C. W. Greene, R. M. Vick.

England and Wales.

THE UNIVERSITY OF LIVERPOOL: VISIT OF SCIENTIFIC AND TECHNICAL JOURNALISTS.

THE Technical and Scientific Circle of the Institute of Journalists has lately been visiting some of the modern universities with a view to acquiring and disseminating knowledge of the work of these centres of education and research, more particularly in relation to the manufacturing industries, to public health, and to the needs of the war. London, Leeds, and Sheffield have already been visited, and from December 10th to 13th a party of journalists representing scientific or industrial publications were the guests of the Universities of Liverpool and Manchester. While all universities have much in common, each takes some colour from its own city, and this was specially evident at both Liverpool and Manchester, the one a great seaport and the other a manufacturing centre, where the local conditions in each case have influenced the direction of university growth.

The University of Liverpool, which was the first of the two to be visited, has set itself to assist commerce, not only through its chairs of modern languages and its School of Geography, but through its School of Tropical Medicine, whose investigations have been the means of making various tropical countries habitable by the white man, and therefore capable of development commercially. A university in a seaport like Liverpool has also a special function to discharge with regard to public health, both that of the city itself, and of the country to which the city acts as a portal. In the laboratories of Liverpool University, for example, daily examinations are made of rats which infest vessels arriving from plague-infected ports, and another vital piece of work is the microscopical examination of foodstuffs which are brought to the docks. In the Department of Entomology critical studies of the breeding habits of house-flies and also of the living organisms other than bacteria found in the water supply have lately been carried out for the local authority. The relations between the city and port and the university are very intimate. The medical officer of health for the city, Dr. E. W. Hope, is Professor of Hygiene at the university, and the Professor of Bacteriology, Dr. J. M. Beattie, is the city bacteriologist. Much of the city public health work is done in the university laboratories, and the Institute of Public Health and Hygiene is jointly administered by the university and the city. The city grant to the university amounts to about £10,000, and the Government grant to about twice as much.

In the absence of the Vice-Chancellor, Sir Alfred Dale, through ill health, the visitors were received by Dr. W. A. Herdman (Professor of Zoology), accompanied by many other members of the Faculty. The university is suffering owing to the absence of many members of the staff and a very large number of the students on war service. The number of students in the last pre-war year was between 1,300 and 1,400, of whom about 900 registered for degree courses. This year the lecture theatres are comparatively deserted. Some of the laboratories have also been turned to quite unusual purposes, and the new buildings of the School of Tropical Medicine have been converted into a hospital for cases of dysentery and malaria among invalided soldiers. In spite of these abnormal conditions, a very excellent view of the work of eighteen or nineteen departments was afforded.

The School of Tropical Medicine, which is under the direction of Professor Stephens, is doing a great deal of routine work in microscopical examinations of specimens from dysentery cases; four trained microscopists devote themselves entirely to this study. A still more recent line of work is the examination of the blood in all cases of malaria in the hospitals in the Liverpool district. The investigation into sleeping sickness and yellow fever and other tropical diseases is being continued, and mention should be made of Professor Newstead's large collection of tsetse flies, now comprising twelve or fifteen different kinds, and including one species, the *Glossina severina*, belonging to the Eusca group from the Belgian Congo, which appears in no other collection in this country.

The departments of pathology and bacteriology are linked up with the Tropical School, and the first of these is the chief laboratory of the 1st Western General and its auxiliary hospitals. Professor Beattie's department of bacteriology is largely concerned with investigations into diphtheria and typhoid cases occurring in the city, and at the present time is particularly engaged upon an examination of shaving brushes obtained locally, some of which have been found to contain the spores of anthrax. This department is the centre of diagnosis for venereal diseases in Liverpool and the adjoining areas under the scheme of the Local Government Board; also of cerebro-spinal fever occurring among the troops. A good deal of work is also done on foodstuffs, and some investigations upon the electrical treatment of milk are now in progress. The more specific war work includes a special study of infected wounds, of trench foot, and of gas gangrene.

Next comes the School of Veterinary Science, in the charge of Dr. Share-Jones, where an attempt is being made to correlate the study of animal and human diseases. The comparative study is continued in the Department of Zoology, where malignant diseases in sea-fish—sarcoma in the ray, for example—have been investigated by Dr. Johnstone, and found to correspond precisely with the human histology.

In the chemical laboratories—Liverpool has four Chairs in Chemistry—a considerable amount of work has been proceeding in recent months on the preparation of beta-eucaine and novocain, as well as the production of salvarsan, phenol, salicylic acid and picric acid, and other substances. One distinctive feature of the work at Liverpool, which is to be found nowhere else, is a Lectureship in Refrigeration; the course includes the construction of cold storages and the general problem of the transport and preservation of perishable foods.

We have touched upon only a few of the departments shown to the visitors, but the general impression was that of a university which, depleted of its students, and interrupted in its ordinary instruction (perhaps especially on the medical side), has continued to justify itself by keeping up as far as possible all the original lines of research, and co-ordinating the university course with the requirements of industry, while at the same time making an invaluable contribution to public health and war medicine.

THE EUSTON HOSPITAL FOR WOMEN, LONDON.

The jubilee of the New Hospital for Women, Euston Road, was celebrated on December 12th. Queen Amelie of Portugal was present. Owing to the absence of Lady Hall through illness, the chair was taken by the Countess of Minto. The meeting was opened by the Bishop of Stepney, and Miss Muriel Foster sang a song of thanksgiving. Sir Alfred Keogh, K.C.B., Director-General A.M.S., said that the hospital was very worthy of support,

but its usefulness was restricted for want of funds; Mrs. Scharlieb, M.D., M.S., gave an account of the great work done by Mrs. Garrett Anderson, the founder of the hospital, and Sir John Bland-Sutton spoke of the good work it had done. He believed that it was the duty of the great hospitals and schools in London to open their doors to medical women on exactly the same terms as to men. Dr. Louisa Garrett Anderson described her mother's pioneer work in the past, and that being done by medical women at the present time. Mr. A. Gordon Pollock appealed for funds to endow more beds; for £1,000, he said, a bed could be named; fully to endow one an investment of £3,000 was required. He also suggested that intending donors should buy war saving certificates and present them to the hospital. The hospital now contains seventy-one beds, and its annexe at New Barnet twenty-three; the waiting list is always long, and the need for enlargement after the war is felt.

Scotland.

THE Corporation of Glasgow has recently decided, after a private session, to appoint a committee to investigate the housing of the working and poorer classes in the city. The object of the inquiry is the production of an ideal plan of the city, taking into primary and full consideration the more clamant cases of uninhabitable property in conjunction with street planning and improvement.

PREMATERNITY WARD OF THE EDINBURGH ROYAL MATERNITY HOSPITAL.

We learn that an anonymous donor has presented a sum of £1,100 to the directors of the Edinburgh Royal Maternity Hospital. The gift is made in memory of the late Sir Alexander R. Simpson, who was for thirty-five years one of the physicians to the hospital, and who was consulting obstetrician to the institution at the time of his death last April. The donation is made on the understanding that it be added to the endowment already held by the trustees of the hospital for a Sir A. R. Simpson bed, and that it be used for a bed in the prematernity ward. It will be recollected that a similar anonymous gift was made to the hospital some sixteen years ago for the endowment of a bed (named the "Hamilton Bed") for prematernity cases. This marked the beginning of the formation of the prematernity department as a specialized part of the work of the hospital.

RED CROSS WORK IN NORTH-EAST SCOTLAND.

In the JOURNAL of December 9th, p. 819, reference was made to Red Cross work in the North-Eastern District of Scotland. We are glad to be able—thanks to the courtesy of the Commissioner, Colonel Scott Riddell, M.V.O.—to supplement that note with further details, which will give an idea of the magnificent help rendered by willing workers in the City of Aberdeen, in Aberdeenshire, Banffshire, Nairnshire, Inverness-shire, Ross-shire, Sutherlandshire, Caithness-shire, and in Orkney and Shetland. The Commissioner's summary of the work done since the beginning of the war, given in his weekly statement for November 27th, shows the activity of the various agencies conducted on behalf of the Scottish Red Cross by the Central Dépôt in Aberdeen for the North-Eastern District. The number of garments and comforts received and distributed up to the week previous to the date of report was 136,608; there was besides a large amount of delicacies, invalid foods, dairy and garden produce and provisions. The number of dressings, bandages, etc., received was over 100,000. In addition to large quantities of game, 1,079,523 eggs were received and distributed. The Scottish Red Cross gave to military and auxiliary hospitals in the district over one and a half million cigarettes, and over 1,100 lb. of tobacco and 1,801 lb. of tea passed through the dépôt duty free. In the rest room of the Joint Station, Aberdeen, 64,583 meals were provided for sailors and soldiers passing through, and in the sleeping quarters in connexion with it 6,207 sailors and soldiers had beds and refreshments provided for them. Between August 25th, 1915, and November 19th, 1916, the Scottish Red Cross in the city of Aberdeen carried in its motor ambulances and cars 64,957 men. There were 21,727 car runs with a mileage of 44,967; the average carried per day was over 143. The moneys collected on flag days and in collecting boxes amounted to £5,906 12s. 7d. In addition the Commissioner was able to forward to head quarters £1,200 in cheques of £50 each to endow twenty-four beds in the Scottish Red Cross Hospital, Rouen, the Hôpital de l'Ecosse, Paris, the Scottish Ward in the Anglo-Russian Hospital, Petrograd, and the National Red Cross Hospital, Bellahouston, Glasgow. Our reference to the Orthopaedic Section at the Oldmill Hospital is not quite correct. The Executive Committee of the Scottish Red Cross does not propose to appeal to the whole of the Highland Divisional area, to a great part of which Oldmill Hospital is not related. The Highland Divisional area extends from Shetland to Argyllshire and includes the whole of the Central Eastern Red Cross District and a considerable part of the Western Red Cross District. It is proposed to hold a meeting in Aberdeen on December 18th when Sir George T. Beatson, K.C.B., Chairman of the Scottish Branch of the British Red Cross Society, will be present, and will meet a small representative committee in Aberdeen, including Colonel Scott Riddell as Red Cross Commissioner, and Lieutenant-Colonel J. Smart, Officer Commanding the 1st Scottish General Hospital, along with the presidents of the counties of the North-Eastern District mentioned above. At that meeting steps will be taken to arrange for the organization of a collection in the counties of a district to provide a sum of from £2,500 to £3,000 which will be required to provide electrical equipment, massage and movement machines, whirlpool baths, orthopaedic huts ments, and a curative workshop.

Ireland.

A RATHER serious outbreak of typhoid fever is reported by Dr. O'Hara from Clashawann, Clare.

The guardians of the New Ross Union, where there are 811 defaulters under the Vaccination Acts, were asked by the Local Government Board to prosecute the more persistent cases, but adjourned the consideration of the matter till next May.

The Inspectors of Lunacy, in their annual report, point out that the number of inmates in the Ballinasloe Asylum has increased to 1,487; they comment on the grievous overcrowding, but are unable to suggest a remedy, as the financial state of the country forbids any extensive scheme of enlargement.

The Letterkenny Guardians last week again elected Dr. McGinley as dispensary medical officer for the Letterkenny district. The Local Government Board had previously refused to sanction Dr. McGinley's election on the ground that he was of military age. By twenty votes to twelve the Wexford Board of Guardians last week decided to increase the remuneration to Dr. Anglim, Broadway, for discharging portion of the duties of Dr. Doyle, who is at present on military service, by £1 1s. a week. In the Carlow Union the salaries of the medical officers have been increased according to a graded scale. The maximum salary of the medical officer of the Carlow Dispensary District was fixed at £212 a year.

TREATMENT OF TUBERCULOSIS.

At the annual meeting of the Dublin branch of the Women's National Health Association Sir Joseph Glynn, chairman of the Irish Insurance Commission, in moving the adoption of the report, congratulated the branch on the result of the year's work; that of the Samaritan Committee in visiting tuberculous patients in their own homes was of such importance that he thought it a disgrace that it should be left in the hands of volunteer workers. The whole system of tuberculosis treatment from top to bottom needed to be reorganized. Sanatorium treatment and domiciliary treatment were both good, but both were practically useless if the tuberculous patient was not followed into his own home.

Correspondence.

PHYSICIANS AND SURGEONS.

SIR,—Institutionalism—the gradual capture of the spirit by the letter, of thought by dogma, of freedom by custom, of life and spontaneity by the incrustation of form—such are the reflections, such the lessons of history, and of such is that controversy, antique if not ancient, between surgery and medicine which in the last few weeks has returned in the somewhat sordid guise of a battle of fees.

Has not the conventional separation of these two aspects of one thing, long anomalous, become even grotesque? How long are we to go on, as by a Solomon's schism, cutting maladies in halves and distributing one moiety to one professor, the other to another, without laughter or tears? Was that great surgeon serious or sarcastic who eleven years ago allotted the appendix to the surgeon and the caecum to the physician? By two several piles of masonry and by separated vested interests which are stronger than stone walls, we have petrified in a monumental folly the iniquity of the University of Paris, whereby the body of medicine was rent in twain. To Hippocrates, to the great Alexandrians, to Galen, our dilemma, a legacy from mediaeval conceit and intolerance, would have seemed incredible. And we need not search beyond Oribasius to see how active was medicine in its integrity and unmutilated from Celsus to Galen, and in later times in the greater period of Bologna. Down, let us say, to the later twelfth century this dichotomy was never dreamed of. It was not till the century following that certain far-sighted professors of medicine in Salerno began to dread a divorce of surgery from inner medicine, as in clerical and feudal circles surgery became distasteful, and in their opinion servile. Bruno, in his *Chirurgia Magna*, bitterly resented the growing antipathy to surgery of celibate clerks; and already in the *Glosses of the Four Masters* the decadence of medicine was foretold in a conceited aversion from surgery and anatomy.

The axe fell in Paris, when the university excluded all who worked with their hands. Then it was that, in Burdon-Sanderson's words, "Medicine lost its scientific arm." For in the past it has often been that by its surgery, living at the root among lowly and unlettered men, medicine was from time to time renewed and kept in touch with Nature. One blighting effect of this decree of the Paris University was that the sycophantic Faculty of Medicine, with denunciations worthy of Ernulphus, strove to out-Herod Herod in its contempt of handicraft; and even the Surgical Corporation of St. Côme was not ashamed to ape the Faculty. Thus medicine eviscerated herself, and dried into the husks which were mocked at by Petrarch, Rabelais, and Molière. And so the upas tree of Paris blighted medicine in Oxford and Cambridge, in Montpellier and Toulouse. Unfortunately with the Arabs also the sanctions of Islam stifled anatomy and surgery; so that, in spite of Avicenna and the discovery of texts, medicine descended to the depth of the bookish "*médecins reclus*," who did not find it necessary even to look at the patient. A trace of these wiseacres we all remember in Falstaff's doctor, who however was modest enough to speak with some reserve. In the Renaissance Linacre and Caius were more humanist than scientific. It is scarcely now credible that when I proceeded to the M.B. degree in Cambridge no surgery was expected of us, not even certificates of attendance on sugery.

And still we go on with this blind and foolish routine, and then profess ourselves amazed at the false positions it creates. In various but irregular ways medicine and surgery are still trying to come together, but with no full measure of reform or of historical sense. Nevertheless we can at least congratulate the gynaecologists, who alone have had the courage and sagacity to defy these sterile conventions and to claim in their therapeutics a liberal and consistent part in all and any direction, surgical or medical, which in the interest of the patient may seem indicated.

Specialism, of course, there must be, as within the several spheres of medicine and surgery it exists already; but let it be on natural lines and according to personal inclinations, not constrained by the obsolete and narrow pedantry of mediaeval guilds and academies.—I am, etc.,

Cambridge, Dec. 9th. CLIFFORD ALLBUTT.

P.S.—I hope it may not be unbecoming in me to refer the reader to my little book on the *Historical Relations of Medicine and Surgery*, published in 1905.

FEES OF PHYSICIANS AND SURGEONS.

SIR,—The correspondence in the JOURNAL appears to be in danger of becoming both acrimonious and bitter, a state of things neither elevating nor seemly at the present time, and I think it is time to call a halt.

Personally I have always found both surgeons and physicians, if properly approached by the general practitioner, most reasonable and moderate in their fees to patients of moderate means. The unselfish way in which they set aside their other work—often much more profitable—to attend a patient twenty or more miles away in the country at often quite minor fees, should call forth from the general practitioner not revilings, but praise.

Two cases have recently occurred in my own practice where a surgeon has performed serious operations on patients of moderate means—the first an amputation of a breast for an ulcerating malignant tumour, and the second for appendicitis, in either case for under £20, including the anaesthetic and subsequent dressings. The surgeon in question is a first class operator with a big reputation in the Eastern Counties, and I am sure no one will say that these fees are really commensurate with the services performed. So much for the surgeons then. I have found the physicians equally reasonable, whether in London or the provinces.

I am glad to have the opportunity to set on record my sincere gratitude to both classes of consultants for the generosity displayed so freely to patients of moderate means, and the invariable courtesy shown to myself when introducing to them this less highly remunerative work.—I am, etc.,

December 9th. ANOTHER GENERAL PRACTITIONER.

SIR,—I am in general agreement with Sir James Barr's letter in your last issue, which abounds, as his letters usually do, with sound common sense. But I take exceptions to one of his arguments. It is that in which he "tilts" at Dr. Thurstan Holland's objections to any other than a trained medical radiologist attempting to diagnose injury or disease by the use of the *x* rays. His physiology argument is quite beside the point. Of course, a trained scientific man who has made a special study of physiology is able to teach the subject. But he does not attempt, nor is he able, to enter into all the complicated questions of the diagnosis of disease in doing this. The optician, too, in his examination for errors of refraction is not able to analyse intelligently the part played by disease in the eye without a long clinical training in this branch of medicine. That a physicist could easily obtain a knowledge of all that is required of human anatomy or even pathology I am inclined to dispute. Pathology at any rate is so ineradicably mixed up with a general knowledge of clinical medicine and surgery, that without a medical training the physicist's deductions would inevitably be inaccurate. Sir James must not forget that many of the most important points in the *x*-ray diagnosis of disease, especially in heart, lung, stomach, and intestinal troubles, are not solved by the examination of a radiogram, but by careful screening and ocular observations of complex objective movements in the organs involved. Dr. Mercier's letter has in one sense been of positive service. It has shown that there are physicians who even still look on surgery as a mere mechanical handicraft. However absurd this may be, it is no more absurd than the smug complacency of some surgeons who in the same way look at radiologists as mere mechanicians, whose work any individual with a slight knowledge of physics can undertake.—I am, etc.,

London, W., Dec. 11th. JAMES METCALFE.

SIR,—Dr. Lauriston Shaw in his letter to you of November 28th alludes to "advertising dentists." I am under the impression that dentists may not advertise. Am I incorrect, or is Dr. Lauriston Shaw loose in the use of his terms?—I am, etc.,

London, S.E., Dec. 9th. W. L. PARTRIDGE.

SIR,—The correspondence on this subject has not been barren. It has not shown any general agreement on the point at issue, but it has drawn a letter from Sir James Barr, which, though perhaps not an excessively difficult, is always an advantageous thing to do; and incidentally it has decided a logical problem which has puzzled at least five generations of logicians. On the one side are the great names of Kant, Sir William Hamilton, Archbishop Thomson, Bode, Ueberweg, Bain, Bradley, and Fowler, who unanimously declare that if a thing is either this or that, it cannot by any possibility be both. On the other side are the equally great names of Archbishop Whately, Dean Mansel, John Stuart Mill, Stanley Jevons, Venn, and Keynes, all of whom are positively of opinion that if a thing is either this or that, it may in certain circumstances be both. This excruciating problem is now solved for all time, for Sir James Barr reminds us that a man at 40 is either a fool or a physician, and it is certain that a physician who accepts what the lawyers call a contemptuous sum, for services greater than a surgeon would charge a hundred guineas for, is both.

I take no objection to the practice mentioned by Sir James Barr of wrapping the fee in paper, but I do think the College of Physicians might usefully issue an edict against the practices of hiding the fee by putting it on the mantelpiece, or shoving it among the papers on one's table, or of leaving it in one's hand as the patient shakes hand on his departure, as if it were a thing of which patient and physician were equally ashamed. For my part, I am ashamed, not when I get a fee, but when I do not.

With respect to the fees of surgeons, the following story, which I can vouch for, is germane to the matter. A certain business man was advised by his family doctor to consult a surgeon with respect to a malady which, the doctor warned him, might require an operation. "Certainly," said the patient, "but on this understanding, that, if the surgeon advises an operation, it shall not be performed by him. For that I will go to another surgeon." The family doctor thought this an odd proviso, and asked the reason of it. "The reason," said the patient, "is this. If I go to a surgeon for advice, I pay him a couple of guineas, and there the business ends; but if he performs an operation, I shall have to pay him a hundred. Now, it is not in human nature that his opinion should be uninfluenced by this consideration. Consciously or unconsciously he must be swayed by it, especially if the reasons for and against are nearly balanced; and what I want is an unbiassed opinion." This, I think, is a story to be marked, in a proper sense of that ill-used word.

When Mr. Cunning suggests that surgeons should be paid according to the benefits they confer upon their patients, surely he belies his name!—I am, etc.,

Parkstone, Dorset, Dec. 11th. CHARLES A. MERCIER.

⁂ In view of the larger issue raised by Sir Clifford Allbutt's letter above, the correspondence on the particular aspect of the matter which relates to fees may properly come to an end with Dr. Mercier's reply.

MOBILIZATION OF THE PROFESSION.

Why Not at Once?

SIR,—Your remarks in your issue of December 9th will lead many to wish that a state of suspense, in which we find ourselves, were terminated.

Those of us who, like myself, though of military age and willing to serve, are kept back by circumstances, would welcome some equitable arrangement whereby our work could be done by others, if, at the same time, the loss of our practices, which we see to be inevitable under existing arrangements, were to be guarded against.

My junior partner is on service, and I have been doing my best to keep things together for him, but only at a heavy loss of *clientèle* for him. His loss is equally mine. His neighbours undertook to help as much as they could. Of scores of private calls from his end of the practice, that I have had to decline in the last eighteen months, owing to heavy demands on my own time, believe me, Sir, not one has been sent back to me as having been done for him. I do not altogether blame his neighbours. In a working-class district probably 90 per cent. of the people have been to at least three or four doctors in the district from time to time, and when a patient turns up again no questions are asked. I have myself returned only some half-dozen private cases during the same period to other men on service, after rendering an account for the absentee; and this despite careful inquiry in any doubtful case.

Mobilization, of course, in itself will not solve the difficulty of loss of the capital value of our practices represented as goodwill. The problem of demobilization will be more serious. I make bold to say, however, that of the thousands of medical men who are faced with this serious capital loss, the vast majority would gladly accede to a far-reaching Government scheme carrying with it a guarantee of remunerative work when the war is over, along with a liberal pension scheme in the event of death on service, in which the capital value of the practice at the time of surrender is taken into account.

It is, I am sure, the certainty of this loss, as proved by the events of the last two years, that holds back hundreds of men of middle age from offering their services.

One other suggestion in closing. If we are to be mobilized, it must be compulsion for all registered medical practitioners, including those who, under the privilege of reciprocal registration arrangements, are rendering help in many cases most valuable. These must be utilized to the full, and, if put in charge of our practices, must be held to these until the incumbent is allowed to return.—I am, etc.,

Nottingham, Dec. 12th. A. CHRISTIE REID, M.D.

SIR,—In your article on the above in the JOURNAL of December 9th, p. 809, you define "mobilization" of the profession to mean in principle—

> That every medical man or woman should formally undertake to place his or her services at the disposal of the governing authorities of the country, to give such services, whether military or civilian, as may be indicated, and if civilian, to render the service in any place in Great Britain.

If this undertaking is given voluntarily no possible objection can be taken, and the profession will gladly recognize the self-sacrifice and patriotism of those giving such undertakings. But if it is suggested that these undertakings should be compulsory, it is quite another matter; and it behoves the British Medical Association, as the recognized defender of the rights and liberties of the profession, to enter the strongest protest against such a scheme, unless the compulsory legislation that brings it about throws similar obligations on the whole community. You cite the recent German legislation on the subject; but this does not put any special obligation on the German medical profession as a class. All classes of the community are equally coerced. If the nation is desirous of following the German example our profession would be quite willing to share the common burden. But from an article in this week's *Lancet*, and from the tenor of certain articles in the *Times*, it would seem that the promoters of this mobilization have in their minds a compulsion to be put on the medical profession as a class, and not shared by the community generally.

The British Medical Association could not surely uphold so tyrannical a procedure. Up to the present time, if we have suffered greatly, we have the satisfaction of feeling that what we have suffered has only been our share of the common suffering. If, however, there is to be class legislation, and because of our presumed qualification we are to have obligations put upon us not shared by the rest of the community, the situation would be vastly altered, and the injustice meted out to our profession would not make for efficiency in any service procured in this way. It is true that we have a precedent for such legislation. In the Napoleonic wars, by means of the "press gang," a section of the Royal Navy was recruited in this fashion. But it is a far cry to the early years of the last century. If the supply of medical practitioners for war purposes is inadequate, it must be supplemented by an extension in the age limit of those called up for war services. That is the only equitable way in which the medical needs of our civil population can be properly met.—I am, etc.,

London, N.E., Dec. 9th. MAJOR GREENWOOD.

ECONOMICS OF INSURANCE.

SIR,—In taking over our incomes and redistributing them at its will Parliament has been guilty of a monstrous invasion of civil rights. To state the bare facts is to convict it of what is—in effect—the wickedest thing that has been done by a Parliament since the days of Charles II. For yielding, the profession was itself to blame; it was a short sighted, perhaps an unpatriotic, thing to do. But for the disregard of every one of the pledges made by Ministers to scoop us into their net, down to the right of refusal, the leaders of the Association must be held responsible. To the official eye they represent the profession, and an unyielding attitude on their part must have brought the Commissioners to their knees.

They do not represent the profession as doctors; do they represent us as citizens? Of the many doctors with whom I have corresponded or talked, not one has ever believed that the Act was good for the country at large. I have seen letters to the lay press from others who thought it would do good; but their arguments, examined, always have rested on the individual benefits which any other Poor Law must show; they have never looked at it in its broad aspect, and never at the economic side. Now, the central fact, which can neither be obscured nor condoned, is that it has lessened real—sometimes even money—wages. That effect was clearly foreseen by the author of the Act when (before assemblies of employers) he pleaded that they would "no more pay than they did in the case of Mr. Chamberlain's Act." Can administrative benefits ever overtake a lowered standard of living? In the case of the large borderland class, for which alone could the Act be considered necessary, it is plain that they cannot: for with it, every additional expense must be saved out of food. It is apparent, then, that the Act risks making a large section of the population feebler; and just as the decline in the tuberculous death-rate was reduced in speed from 1896 onwards, when real wages began to fall, as the probable result of the public extravagance which had begun to be fashionable then, so it is probable that this Act will increase the number of cases of tubercle among that class. As for those of other classes who made provision for sickness before the Act, its only effect has been to reduce the purchasing value of the benefit and to enhance the cost of medical attendance. In fact, all doctors will agree that the only unequivocal gainers, as a class, are such well-to-do people with "employed" children as are not ashamed to let them be treated at charitable rates; or as used to pay for their servants, and have ceased to do so now; for they can, and often do, save in one doctor's bill enough to pay many years of premiums.

The moral effects are more serious still, apart from the teaching of such people to rely on State aid. The British working man had worked himself up to a political and social freedom which made him the envy of every proletariat in Europe. On him they have fixed the fetters which perhaps fitted a nation politically so backward as Germany, but which have resulted in a product that called for a most damaging comparison by General von Arnim only the other day. They have crippled him with a great and growing burden, and delivered him as the helpless prey of that parasite of modern societies—the paid and permanent State official. They have thrust on him the status of a child or a lunatic, with rights, indeed, but duties which his "master" must perform. Let us never forget that the Sir Robert Morant of the German scheme retired after twenty years' service with the published verdict that it had been a "gigantic and costly failure, and the cause of the wholesale demoralization of the German people."

It is not a copybook platitude but a hard sociological fact that injustice cannot stand. The apologia of the Commissioners in the JOURNAL of October 14th is nothing but a long-drawn-out confession of injustice *plus* a plea that they cannot help it. It is unjust to make some doctors rich and many others poor. It is unjust to say to employers, "Your customers pay," and then, turning to their employees, to say, "Your masters pay." It is unjust to stamp on a man who sells services the stigma of inferiority to the man who sells goods. It is unjust to spread tubercle in order to build sanatoriums.

Obey the law! Yes. But do not slack in your efforts to work for the fundamental alteration of a law forced on the electorate without its consent; repudiated at every by election where it has been a test question; against which there was before the war an actual majority of English members in the House. A man must be blind to English history, to English character, to current events, not to see that the repeal of the degrading compulsory element is, sooner or later, inevitable.

I know that this summary reflects the feeling of many members. And, Sir, we have the right to some representation in the councils of the Association. If the Insurance Acts Committee cannot in any way reflect this feeling of implacable hostility to a bad law—of determination to hoist with their own petard the men who forced us by threats into this position—we have a right to be told the fact publicly and definitely, so that we may know where we stand. On the Commissioners' own showing, the Act is unworkable without grave injustice. Why keep up the pretence that it can be worked? If our representatives insist on playing the farce through, let them give us notice, so that we may secede in a body, and by joining other more representative bodies show the Commissioners that in dealing with them they are only dealing with a section of the profession. Or if the Council would announce that it would appoint after the war a committee to inquire into and report on the effects of the Act on the nutrition of the poor, it would show that it was not (as is suspected) given over to party. Proof of an open mind would placate men who feel as I do, and help to keep the Association intact. More than that, we are left as the last line of defence of the insured against that cruellest of despotisms—bureaucratic officialism. Lastly, it would be in the interests of scientific truth and its results might be indefinitely great. The mere announcement in the lay press of the intention would entirely change the aspect of affairs.—I am, etc.,

Rayleigh, Essex, Oct. 20th. B. G. M. BASKETT.

MEDICAL CERTIFICATES FOR RECRUITS AND WAR WORKERS.

SIR,—The definition of a certificate given by the President of the General Medical Council as "evidence of fact ascertained by an expert and attested by a man of honour," should be in the mind of all of us at all times; it is a counsel of perfection at which all should aim; but it may be permissible to point out, since the warning is issued at the instance of Government departments, how much these departments have themselves done to degrade certificates, and to deaden the sense of responsibility which should always be present in the minds of practitioners when writing them.

It is not easy to conceive this definition as applying to a certificate compulsorily given for national purposes, and branded as routine and trivial by a contemptuous fee of something less than a shilling.

The enormous number of the certificates demanded from practitioners under the Insurance Act undoubtedly tends to inhibit the judgement and sense of responsibility in this matter. In a small insurance practice of about £300 a year I have frequently written as many as twenty in a day, and in many practices the daily average must be more than double this number. No one can write certificates in this wholesale way—not as the day's work but as a mere incident in it—without the sense of moral responsibility becoming at least blunted.

In addition to compulsory certificates there is the ever-increasing volume of work thrown upon us by the public at the suggestion of the War Department. Within the last month I have had to write all of the following legal documents, the majority of them many times:

1. Identify reservists and pensioners by inspection of "ring paper," and witness their signature.
2. Witness signatures of dependants claiming allowances.
3. Give medical certificates of inability to attend at post office to draw allowance.
4. Witness a power of attorney for the money to be drawn by a relative (weekly).
5. Give certificates for old age pensioners.
6. Give written opinions that men discharged from the army—perhaps months before—have probably been unable to work from the date of their discharge to the present day.
7. Write full and detailed reports on men who have died from disease after leaving the army, to support claim of dependants for special pensions.
8. Meet direct requests from medical boards, for past history of men claiming exemption.

9. Interview police officers in order to satisfy the War Office as to genuineness or otherwise of applications for leave to visit sick relatives or attend funerals.
10. Give, or refuse to give, certificates authorizing publicans to supply spirits, etc., etc.

There would be no difficulty in extending the list.

True, for some of these duties a police sergeant or a minister will serve, but the individual does not happen to know a sergeant or where and when to find a minister, so in practice the whole burden falls on the doctor. It would be interesting to know why a lawyer should not be accepted and suggested as a witness.

There is no question of payment here. The cheap gibe "that we are out for fees" does not apply, for the Government, if willing to pay, could hardly provide the necessary machinery, and that we should exact a fee from the dependant and the pensioner for it is unthinkable, but much of it might be done by official visitors (honorary) appointed from the leisured classes not doing useful war work.

I am no apologist for laxity, and for the major offence of wilfully issuing a false or misleading certificate no apology is possible, but it is not too much to ask that the authorities, who rightly censure wrong doing, should do something to make right doing, if not easy, at least humanly possible.—I am, etc.,

Salford, Dec. 10th. C. R. O. GARRARD.

SIR,—Referring to the latter part of your leading article, "A Scorn and a Derision," I should like to say that unsatisfactory certificates could practically be abolished by making a rule that no certificate which had passed through the patient's hands could be accepted as proof of anything.

With regard to certificates to secure exemption from military service, or extended sick leave, what happens is generally this: The patient arrives accompanied by his mother or perhaps his wife. These ladies understand well the methods of the importunate widow, and perhaps in the end a certificate, at first refused, is given. It is unfair to allow the medical man to be subjected to pressure of this kind, especially when it could be avoided by providing the patient with a franked form to be sent direct to the chairman of the tribunal or the commanding officer of his battalion.

The form might contain a few questions designed to elicit the information really required. These questions should not be copied from the form for special reserve recruits, which were apparently framed to defeat any attempt to give information about the man examined.

Further, instead of lashing him with "scorn and derision," is it not time rather to lift the burden of certificates under which the practitioner of to-day is labouring? How can he be expected to feel the importance of a certificate when he writes them by the score, and knows that most of them are needless? Why, for instance, when I have certified that a man has a fractured thigh, must I give another certificate in a week's time to say that it is still fractured? And surely some other means could be found of excusing a man his weekly contribution of 4d. to the Insurance fund than a weekly certificate from his medical attendant. Perhaps with the latest medical certificate to enable a man to purchase sixpennyworth of whiskey, we may have reached the limit of the nuisance, but I am not sure. As long as the medical practitioner is content to write endless certificates without a fee no one will hesitate to take advantage of his "complaisance." But when the public poaches on this same complaisance, the Government, which regards it as its private preserve, complains to the General Medical Council. As a matter of fact, these unsatisfactory certificates usually represent the practitioner's only means of escape from an intolerable nuisance. If the Government will take the trouble to abate the nuisance by providing for direct reports, they will find a great improvement. That would be much more effectual than threatening the general practitioner, even if, to parade a delusive fairness, the threat is extended to the consultant in Harley Street. Does any one go to Harley Street to ask for free certificates?—I am, etc.,

R. H. BOTHAM, M.R.C.S.Eng., L.S.A.

Skelton-in-Cleveland, Yorks, Dec. 9th.

SIR,—I wish most cordially to endorse every word of the letter of "Anxious" as to certification difficulties in the JOURNAL of December 9th. The modern certificate mania is driving some of us to the verge of nervous breakdown, and the more conscientious a man is the greater the amount of unnecessary labour inflicted upon him by the Insurance Certificate Regulations.

To my mind this latter trouble is caused by the fact that the regulations were framed by persons who know little and care less about the difficulties of a general practitioner in a working-class district.—I am, etc.,

London, S.W., Dec. 11th. ALBERT SHEPPERD.

COMPULSORY LATIN.

SIR,—May I be allowed, however fruitlessly, to protest against the abolition of compulsory Latin in the preliminary general knowledge tests for medical students? Apart from its obvious value as a key to foreign languages now in use, and to our own medical terminology, Latin stands for much which may be found, when it is too late, to be of unsuspected importance. Latin grammar provides a mental discipline on which experienced and able educational authorities have laid especial stress; what is to replace it? Dr. Alex Hill, formerly Master of Downing, speaking from wide experience, stated that the classically educated boy left the unclassically educated behind in the study of scientific subjects. Has this no bearing on the present proposal? "Latin" includes, not merely a noble language, but a priceless history and literature, which link up closely with our own in fostering that acquaintance with the past that is so necessary a corrective for the insistence of the present; in time as well as in space the saying is true: "Home-keeping youths have ever homely wits." For generations Latin has played a conspicuous part in building up the type of civilization which I have heard even Germans call the highest, the "English gentleman." Does any calling need that type in its ranks more urgently than ours? We know intimately the effects of classical education on large numbers of men, and we know that these effects are good; what real knowledge have we of the effects of a "scientific" education from which classics are excluded? Are we prepared to gamble with the national character? Are we going to Hun-land for models? Let us be very sure indeed what we are about before we exchange our old lamps for new.

To assert, as some are doing, that "science" and "classics" may be equally well used to form the mind and character, is about as sensible as to assert that "a man can do equally well with food or with a box of tools." Both food and tools are good, but sane people do not regard them as interchangeable. Let us by all means have a reasonable amount of science in education, but let us have classics as well.

Some seventeen years ago a deputation from the British Medical Association waited upon the General Medical Council to protest against the then very inadequate standard of preliminary general education for medical students. Nothing was accomplished, and the opinion was afterwards expressed that we should see the standard further degraded as time went on. If the present proposals are carried into effect the degradation will be even greater than was then anticipated.—I am, etc.,

Exeter, Dec. 13th. W. GORDON.

The Services.

TERRITORIAL DECORATION.

THE King has conferred the Territorial Decoration upon the following medical officers of the Territorial Force:

Major W. E. Miles, F.R.C.S.
Major J. Wilson, M.B. (attached Royal Engineers).
Major (temporary Colonel) H. A. Kingyard.
Major W. L. Martin, M.B. (attached Royal Scots).
Major C. R. Bishop (attached Somerset Light Infantry).
Major A. H. Vernon (attached Hampshire Regiment).
Major T. W. Banks (attached Highland Light Infantry).

EXCHANGES.

WILL any Territorial R.A.M.C. officer stationed in England, and who is anxious to go abroad, exchange with Captain R.A.M.C.(T.F.) who has been two years in France with a field ambulance?—Address No. 4879, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Medical Officer, attached Royal Engineers, France (mounted unit), wishes exchange with M.O. doing duty, hospital or C.C.S.—Address No. 4880 BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Obituary.

WILLIAM PAUL SWAIN, F.R.C.S.,

CONSULTING SURGEON, SOUTH DEVON AND EAST CORNWALL HOSPITAL, PLYMOUTH.

MR. PAUL SWAIN, one of the best known surgeons of the West of England, died on November 30th in his 83rd year. He was born at Devonport, where his father was a successful practitioner, and studied medicine at King's College. In 1855 he served as a dresser in H.M.S. *Exmouth* in the Baltic during the Crimean war. He held the offices of assistant house-surgeon and house-surgeon at King's College Hospital, and took the diplomas of M.R.C.S. in 1857 and L.S.A. in 1858. He became F.R.C.S. in 1867. He settled in Plymouth, where he soon gained more than local fame as a surgeon. He was for many years surgeon to the Royal Albert Hospital, Devonport, and for a long time consulting surgeon to the South Devon and East Cornwall Hospital. In 1865 he was awarded the Jacksonian Prize for an essay on diseased conditions of the knee joint. He was also the author of *Surgical Emergencies: A Manual for General Practitioners*, of which five editions have been published; *Hints on the Application of the Felt Jacket in Spinal Curvature; Closure of Jaws from Injury and Arthritic Inflammation*, besides pamphlets on recent improvements in surgery, on the moral and physical results of the Contagious Diseases Act at Devonport, on preliminary medical education at provincial hospitals, and on college politics. He was for many years a member of the British Medical Association. At the annual meeting held at Plymouth in 1871 he was secretary of the Section of Surgery; he was Vice-President of the South-Western Branch in 1900 and several following years.

Mr. Swain's activities were not confined to his own profession. In 1898 he was elected a member of the Plymouth Town Council, on which he served for sixteen years. On entering the council he was at once chosen to be chairman of the Sanitary Committee an office to which he was re-elected year after year. He was an energetic advocate of reform, and regardless of party considerations made the improvement of the health of the town his great object. One of the first schemes he carried through was the enlargement of the isolation hospital, and he took a leading part in promoting the local campaign against tuberculosis. He was keenly interested in the question of providing proper housing for the working classes, and other reforms in which he had a hand were the increase in the number of sanitary inspectors, the improvement of the hospital ship *Maud*, and the provision, jointly with the Port Sanitary Authority, of a motor launch. In 1914 the state of his health compelled him to resign the chairmanship of the Sanitary Committee and his seat on the council. In accepting his resignation the council passed a vote of thanks to him "for the industry, zeal, and ability he has at all times shown in the sanitary administration of the town, and for his energy in elaborating the scheme for the treatment of tuberculosis in the borough." Out of office he continued to take a lively interest in municipal affairs, and he was active in supporting local efforts for the welfare of infants and for rescue work.

Mr. Swain took a very active part in parish and diocesan work; for many years he was warden of St. James-the-Less, where he practically rebuilt the Lady Chapel, and added some beautiful decorations. To St. Peter's Church he presented an exquisitely designed alabaster and iron screen. He was also a generous giver to a large number of institutions.

Mr. Swain was a member of the Alpine Club, and a bold climber. He was married three times, and leaves a widow and a daughter by his first marriage.

CHARLES J. RENSHAW, M.D.ST. ANDREWS,

M.O.H. ASHTON-ON-MERSEY.

WE regret to announce the death of Dr. Charles J. Renshaw of Ashton-on-Mersey, which took place on December 6th, at the age of 75. He was born in 1841, and was the eldest son of Mr. Jeremiah Renshaw, surgeon, of Ashton-on-Mersey, to whose practice, founded in 1831, he succeeded. He was educated at Norman House, Altrincham, and was the first boy to enter Epsom College, of which he subsequently became a life governor. He took the degree of M.D.St. Andrews in 1862, and in the following year the diploma of M.R.C.S.Eng. After serving an apprenticeship with Mr. Thomas Turner of Manchester he acted as clinical clerk to Mr. Smith and Mr. Heath at the Manchester Royal Infirmary. In 1894 he became a Fellow of the Faculty of Physicians and Surgeons of Glasgow.

In 1895 he was appointed medical officer of health to the Ashton-on-Mersey Urban District Council, and continued to hold that office until his death. He took great interest in local public affairs, and in particular in matters relating to the old parish church, to which he and his family made numerous gifts. He continued in active practice until within about a month of his death. He was Chairman of the Altrincham Division of the British Medical Association in 1903–4 and President of the Lancashire and Cheshire Branch in 1908. He represented the Branch at the International Medical Congresses at Moscow, Paris, Madrid, and Lisbon. In 1906 he unsuccessfully sought election as a Direct Representative on the General Medical Council. He was a vice president of the Manchester Medical Society and a Fellow of the Anthropological Society, and wrote several essays on local history and on historic trees, of which the district possesses a number. He is survived by his widow, a son (Dr. Knowles Renshaw), and a daughter.

CHARLES HOLLAND SKAE, M.D.ST. ANDREWS, F.R.C.P.EDIN.,

LATE MEDICAL SUPERINTENDENT, AYRSHIRE ASYLUM.

AFTER some years of indifferent health Dr. Charles Holland Skae passed away at his home, Broomieknowe House, Lasswade, near Edinburgh, on December 3rd. He was the second son of the celebrated Dr. David Skae, who from 1846 to 1873 did so much for the scientific study and treatment of insanity whilst physician superintendent of the Royal Edinburgh Asylum at Morningside. Like his father, Dr. Charles Skae was attracted by the problems which face the alienist. After obtaining the licence of the Royal College of Surgeons of Edinburgh in 1862 he graduated M.D. at St. Andrews in the same year. Thereafter he acted as assistant physician to the Fife and Kinross District Asylum under Sir John (then Dr) Batty Tuke, with whom also he collaborated in the writing of an article on a new lesion observed in the brain, which was published in the *Edinburgh Medical Journal* for 1868–9. He afterwards acted as assistant physician to the Coton Hill Asylum, Stafford, and then he was appointed to what turned out to be his main life work, the medical superintendentship of the Ayrshire District Asylum at Glengall, Ayr. For many years he rendered admirable service to his speciality there, until, compelled by failing health, he went to live at Lasswade, not far from the scene of his father's labours at Morningside. He did not make many contributions to the literature of his subject, but his article on a case of traumatic insanity cured by trephining the skull (published in 1873 in the *Journal of Mental Science*) deserves to be remembered.

There was a funeral service at St. Leonard's Church, Lasswade, on December 6th.

DR. CHARLES EWART, of Queen's Gate Terrace, S.W., whose death, after a painful illness, occurred on December 7th, will be missed in South Kensington, where he had spent the whole of his active career and had made many friends. He received his medical education at St. George's Hospital, where he was assistant medical registrar. He took the diplomas of L.R.C.P. and M.R.C.S. in 1885 and graduated M.D.Brux. in 1888. His heart and soul were in his profession, to which his life was devoted unreservedly, without any thought for self. "Kind, energetic, living a life of good deeds, helping and giving hope and comfort to every one," the gentleness and modesty of his character made him universally popular. His tastes and talents were artistic, mechanical, and linguistic. Unable to indulge them, he looked forward to their cultivation in years of retirement. But his higher reward has been to die, as he had lived, in the daily service of his fellow men. He is mourned by a widow, a daughter and a son.

Medical News.

THE library and offices of the Royal Society of Medicine will be closed from 2 p.m. on Saturday, December 23rd, to Thursday, December 28th, inclusive.

THE Lasserre Prize for 1916 has been awarded to Dr. Alexandre Yersin, director of the Pasteur Institute of Indo-China, for his work on antiplague serum.

A SUBSCRIPTION throughout Mexico for the establishment of a Red Cross Society with its headquarters at Vera Cruz recently closed. The total amount contributed was nearly £500,000.

THE British Fire Prevention Committee has reissued its warning handbill as to Christmas entertainments, and any hospital that requires copies for posting can receive them on application to the Registrar of the Committee, 8, Waterloo Place, Pall Mall, S.W.

THE City Council of Boston, Massachusetts, has established a medical department and a psychological laboratory in connexion with the city police-court. The opinion of the experts as to the mental condition of offenders will be taken into consideration before sentence is passed. Dr. Victor V. Anderson is the head of the department.

THE operation of the circular of the Local Government Board issued on December 17th, 1915, dispensing with applications for sanctions or reports in certain specified cases in order to reduce the work normally falling upon Poor Law authorities and the Board, has been extended for another year.

AT the ninety-first annual commencement of Jefferson Medical College, Philadelphia, on June 3rd, the degree of doctor of medicine was conferred on 162 candidates. This is said to be the largest graduating class in the history of the college. There were representatives of thirty-four States of the American Union and of Porto Rico, Nova Scotia, England, Persia, and Syria among the graduates.

A ROYAL proclamation was issued on December 11th prohibiting the importation of cocaine and opium into the United Kingdom except under licence. "Cocaine" includes all preparations, salts, derivatives, or admixtures prepared therefrom or therewith, or any solid or liquid extract of the coca leaf containing 0.1 per cent. (one part in a thousand) or more of the drug. The word "opium" means raw, powdered, or granulated opium, or opium prepared for smoking, and includes any solid or semi-solid mixture containing opium.

IT is announced in the *Pensiero Medico* that Professor Luigi Devoto, Director of the Clinic for Industrial Diseases and of the Clinical Institute of Milan, has been appointed Consulting Physician to the Third Army Corps, with the rank of Major General. Our contemporary speaks of this as a well deserved appointment, and one which will give Professor Devoto opportunities of rendering important services to the army. Since the commencement of the war the Milan professor has taken the greatest interest in the health of the soldiers. In recognition of this and for his important contributions to medical science the King recently conferred upon Major-General Devoto the title of *Commendatore della Corona d'Italia*, an honour equivalent practically to knighthood in this country. We offer our hearty congratulations to the Commendatore.

DR. E. D. PLASS has published a statistical study of 635 labours with the occiput posterior (*Bulletin of the Johns Hopkins Hospital*, June, 1916, p. 164). The presentation (either oblique or direct) occurred in 11.57 per cent., although the actual proportion originally in this position was, he suspects, considerably higher. Rotation of the occiput into the hollow of the sacrum, which occurred in 14 per cent. of the cases, was favoured by too slight degree of flexion, small size of the head, and funnel-shaped pelvis. Contraction of the pelvic inlet favoured anterior rotation. Hodge's theory of ischial spines and inclined planes was the most acceptable theory to account for internal rotation. Premature rupture of the membranes was not especially frequent in Dr. Plass's series of occipito posterior presentations. Spontaneous delivery was the usual outcome. The total operative incidence was 22.9 per cent., but in only 11.02 per cent. was the need for intervention possibly due to the position. Labour was not prolonged, independently of whether the occiput rotated to the symphysis or into the hollow of the sacrum. A contracted pelvis did not increase the incidence of the posterior positions. There was no additional maternal morbidity or mortality, or infantile mortality.

Letters, Notes, and Answers.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C., on receipt of proof.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London*; telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London*; telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London*; telephone, 2634, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

J. M. is anxious to hear whether any reader knows of a case in which a child has been vaccinated on the foot, and if so whether injurious consequences have been noted.

H. T. P. Y. wishes to know the results obtained by the hypodermic injection of creosote for common colds, what dosage is used, how often injections are given, and where. He also asks if the treatment would be likely to have a beneficial effect in chronic antral (maxillary) suppuration which has defied operative and vaccine treatment.

INCOME TAX.

P. J. G. inquires whether he cannot postpone payment of his income tax on the ground that the Government owes him £257 18s. 6d. in respect of National Insurance work.

*** Income tax is payable on or before the dates fixed by statute, and payment can be enforced at any time thereafter. These dates are laid down by Section 82 of the Taxes Management Act of 1880 as modified by Section 33 of the Finance (No. 2) Act, 1915, and are, January 1st for unearned income, and January 1st and July 1st (moieties) for earned income. Our correspondent has no legal right to postpone payment of the tax, but we suggest that he might lay the facts before the local surveyor of taxes, with a view to obtaining some further time for payment, as an act of grace rather than of right.

ANSWERS.

A CASE OF ARSENIC CANCER.

HISTORICUS writes: In the abstract of a lecture delivered recently by Sir John Bland-Sutton (see BRITISH MEDICAL JOURNAL, pp. 788–9), he is made to say: "The woman with cancer at the knee had with great faith swallowed liquor arsenicalis at intervals for thirty years with the hope of curing her psoriasis, until one day a crack appeared at the edge of one of those curious skin patches, and in a fortuitous way the germs of cancer entered, took root, and led to the formation of a large, stinking, cancerous ulcer." But is not this theory entirely at variance with the generally accepted opinion as to the etiology of arsenic cancer?

LETTERS, NOTES, ETC.

SCHOOL RUNS.

PARENT writes: In the JOURNAL of November 25th, p. 748, I read with considerable surprise your correspondent's inquiry as to public school treatment of "stitch." The boy, following his natural instinct to remove the pain, stops running, and is promptly caned for so doing. Continuous and violent exercise immediately following a heavy meal will produce a fatigue spasm or localized cramp of the diaphragmatic or intercostal muscular fibres, generally known as "stitch." To coerce boys to "run this off" is surely a dangerous practice, and to punish the unfortunate victim by caning is reprehensible to a high degree. Imagination staggers at the type of punishment in vogue at this school for the boy who may contract mumps or measles!

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Seven lines and under	0	5	0
Each additional line	0	0	8
A whole column	3	10	0
A page	10	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, not later than the first post on Wednesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.